



W. Stenwin

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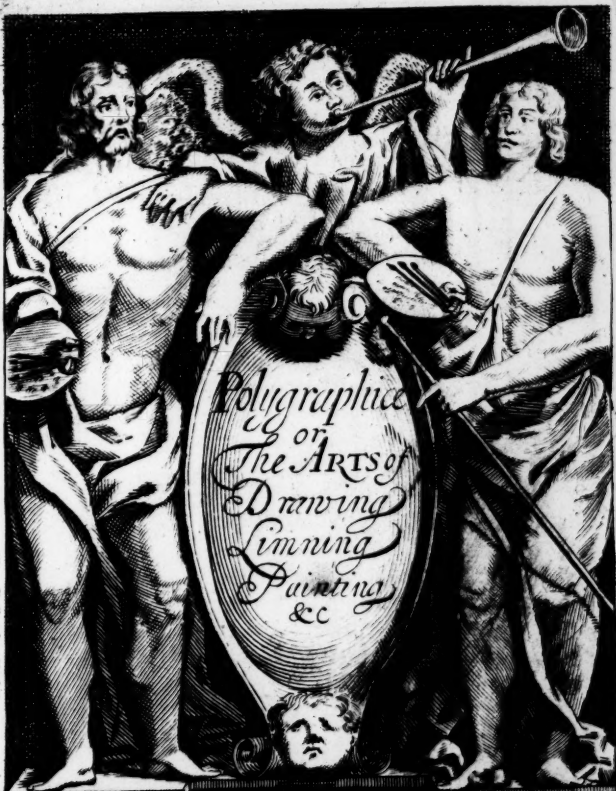
You see his form and yeare, but if you would
 View his just Soule, (which any can't behold)
 In to his work, & following tractate looke
 The lively picture of his minde & booke



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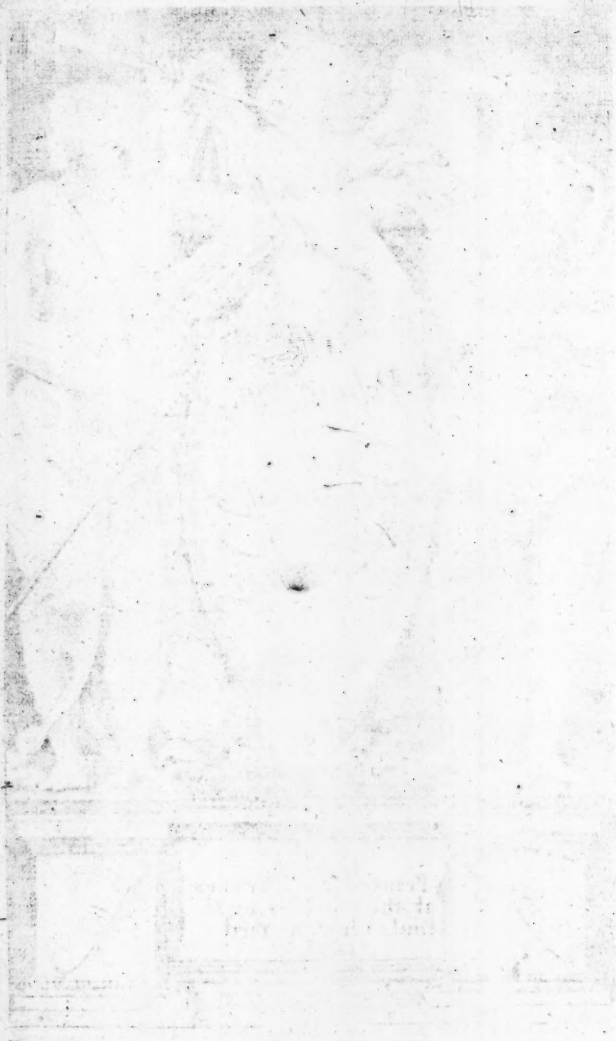


Zeuxis.

London
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Pauls church yard
1675

Apelles.

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POLYGRAPHICE: O R

The Arts of Drawing, Engraving,
Etching, Limning, Painting, Wash-
ing, Varnishing, Gilding, Colouring,
Dying, Beautifying and Perfuming.

IN FOUR BOOKS.

Exemplified, in the *Drawing of Men, Women, Landskips, Countreys*, and Figures of various forms; The way of *Engraving, Etching and Limning*, with all their Requisites and Ornaments; The *Depicting of the most eminent Pieces of Antiquities*; The *Paintings of the Antients*; *Washing of Maps, Globes or Pictures*; The *Dying of Cloth, Silk, Horns, Bones, Wood, Glafs, Stones and Metals*; The *Varnishing, Colouring and Gilding* thereof, according to any purpose or intent: The *Painting, Colouring and Beautifying of the Face, Skin and Hair*; The *whole Doctrine of Perfumes* (never published till now,) together with the *Original, Advancement and Perfection of the Art of Painting*.

To which is added

A Discourse of *Perspective and Chiromancy*.

The Fifth Edition, with many large Additions: Adorned with Sculptures: The like never yet extant.

By WILLIAM SALMON ΦΙΛΑΛΗΘΗΣ.
Professor of Physick.

Non quot, sed quales.

London, Printed by M. White, for John Crumpe, at the Sign of the Three Bibles in St. Paul's Church-Yard. M DCLXXXI.

POEYGT A PHICE

The Arts of Learning

THE UNIVERSITY OF CHICAGO

To the Right Honourable

H E N R Y

Lord HOWARD, Earl

O F

N O R W I C H,

EARL Marshal of ENGLAND.

My LORD,

THE Art of Painting was a thing
which of old *Princes* admired,
Kings did affect, *Emperours* and
Noble men of almost all Ages did
love and make use of. Not to men-
tion *Juba*, *Rex Mauritanie*, *Perseus* King
of *Macedonia*, King *Demetrius*, *Cyrus*
King of *Persia*, *Alexander the Great*,
Cæsar, and others: How was *Tiberius*
the *Emperour* taken with the *Archigal-*

The Epistle

lus of *Parrhasius*, and the Statue which *Lyfippus* made? How highly did *Mnas-son* the Tyrant of the *Eleatenfes* prize the Pictures of the *Thebean* Battel done by *Aristides*? How did King *Nicomedes*, who proffered an unknown sum of money to the *Gnidians*, for the *Venus* which *Praxiteles* made, admire it? Besides many others, too tedious here to be recited, and sufficiently enough known to your Lordship, of which to make any repetition, might be accounted presumption, especially to your *Honour*, whose Skill in Art is large, and whose Knowledge of Universal Learning is not small, chiefly in that of *Hstory* It is Honour, as *Cicero* saith, which gives Being, Life and Nourishment to Arts, and where can that be found more than in your noble Self? Presuming therefore of your Lordships Affection, and that unparallel'd Vertue, and Heroick Spirit, which not only lodges in your Honours Breast, but is also Hereditary to your
Noble

Dedictory.

Noble Family, I have made bold to shelter this *Work* under your Lordships *Patronage* : expecting either to see it live in your *Honours* Estimation , or perish in your dislike. Now if these *Lucubrations* of mine obtain but so much as your *Honours* least Approbation , I shall think my self happy ; and hope, that with your *Name* and *Memory* this *Work* may be consecrated to eternity. May your *Lordship* daily increase in *Honour* and *Glory*, be replenished with all *earthly Blessings* , and for ever enjoy the full fruition of all *Happiness* both in this *World*, and that which is *to come*, is the Prayer of,

MY LORD,

Your Honours most Humble and

Affectionate Servant,

THE
P R E F A C E
TO THE
READER.

THE Subject of the ensuing Work is the Art of Painting : a name not only too singular, but also too short or narrow, to express what is here intended thereby : For we do not only express that Art, (as it is generally received) but also Drawing, Engraving, Etching, Limping, Washing, Colouring and Dying: all which being considered in their proper extent, infinitely exceed that curtail'd name of Painting : which that we might joyn all in one proper and comprehensive word, we made choice of that Greek Compound **POLYGRAPHICE**.

To perswade any one to the Study or Practice of this Art, would be a great folly ; since Ignorance (which is alwayes blind) can never be able to judge aright : For to him that already understands it, the labour would be useless and unprofitable ; to him which is already delighted therein, it would be needless and superfluous ; and to the averse and ignorant, it would be the putting a Jewel into a Swines snout : the exquisite knowledge of which, is impossible ever to be attained or understood, by such prejudicate and cloudy Souls, although it is sufficiently known to many already ; and its usefulness as apparent as it is excellent : To enu-
merate

The Preface to the Reader.

merate the one, or rehearse the other, is but to perswade the world, that it is day-light, when the Sun is upon the Meridian; or at least to inculcate, an ignorance of those things, which have been manifestly known even a long time since.

The Method of this work is wholly new, wherein we have united and made one, such various subjects as have been the uncertain, obscure and tedious discourse of a great number of various and large Volumes. What shall we say? Things far asunder, we have laid together: things uncertain, are here limited and reduced: things obscure, we have made plain: things tedious, we have made short: things erroneous, we have rectified and corrected: things hard, we have made facil and easie: things various, we have collected: things (in appearance) heterogeneous, we have made homogeneous: And in a word, the whole Art we have reduced to certain heads; brought under a certain method, limited to practical rules; and made it perspicuous, even to a very mean understanding.

In the Composure of this Work (besides our own Observations) we have made use of the best Authors now extant, that we could possibly procure, or get into our hands; wherein our labour was not small; what in Reading, Comparing, Transcribing, Choosing, Correcting, Disposing and Revising every thing, in respect of Matter, Form and Order. The which had we any President to have followed, any Path to have traced, any Example to have imitated, any Help to have consulted, or any Subject entire: Or otherwise, had the Number of our Authors been small; their Maxims truths, their Rules certain, their Meanings not obscure, or their Precepts been reduced to Method and Order: We might not only, with much more ease, pleasure and certainty; less labour, trouble and pains; greater perspicuity, plainness
A 4 and

The Preface to the Reader.

and singularity; better order, method and language; but also in shorter time have brought to perfection, what we here present you withal.

In this third Edition we have not only inserted several Copper Cuts, with more than two hundred several additions of singular use, through the three first Books; but there is also a whole fourth Book, containing above fourscore Chapters of such necessary matter, that the work without them may really be accounted defective. There is not only several necessary things added (which were omitted in the three first Books;) as also the various depicturings of the Antients, according to the custom of every Nation, drawn from the best, most experienced and faithfullest Authors now extant, (whether English, Italian or Latin) but also the various ways of Painting, Beautifying and Adorning the Face and Skin, so artificially, as it shall be imperceptible to the scrutiny of the most curious and piercing eye: to which we have added (as a necessary Appendice) the whole Doctrine of Perfumes, never written on (to our knowledge) in this order before; together with the Original, Advancement and Perfection of these Arts.

Lastly, the Reader is desired to take notice, that in this following Work, there are many excellent secrets, not vulgarly known, which fell into our hands from several special friends, (whose exquisite knowledge in these kinds of Mysteries truly declares them to be absolute Masters thereof) which for the publick good are freely communicated to the world.

From the East end of
Pauls, near the Free-
School, London.

William Salmon.

POLYGRAPHICES
LIBER PRIMUS.
OF
DRAWING.

CHAP. I.

Of Polygraphice in General.

I. **P**olygraphice is an Art, so much imitating Nature, as that by proportional lines with answerable Colours, it teacheth to represent to the life (and that *in plano*) the forms of all corporeal things, with their respective passions.

II. It is called, in general, in Greek *ἡγεωγραφία*, in Latin *Pictura*, and in English the *Art of Painting*.

III. It is sevenfold (to wit) in *Drawing, Engraving, Etching, Limning, Painting, Washing and Colouring*.

IV. *Drawing* is, that whereby we represent the shape and form of any corporeal substance in rude lines only.

V. It

V. It consists in proportion and passion, as it hath relation to motion and situation, in respect of Light and Vision.

VI. *Sunderfon* saith, This admirable Art is the Imitation of the surface of Nature in Colour and Proportion. 1. By Mathematical demonstration. 2. By Chorographical description, 3. By shapes of living creatures, 4. And by the forms of Vegetables; in all which it prefers Likeness to the life, conservs it after death, and this altogether by the Sense of Seeing.

VII. The *proportion* shews the true length, breadth or bigness of any part (in known measures) in respect of the whole, and how they bear one to another: The *passion* repreients the visual Quality, in respect of love or hatred, sorrow or joy, magnanimity or cowardise, majesty or humility; of all which things we shall speak in order.

CHAP. II.

Of the Instruments of Drawing.

I. **T**He *Instruments* of Drawing are sevenfold, viz. Charcoals, feathers of a Ducks wing, black and red Lead Pencils, Pens made of Ravens quills, Rulers, Compasses and Pastills.

II. *Charcoals* are to be chosen of Sallow-wood split into the form of Pencils, and sharpned to a point, being chiefly known by their pith in the middle.

Their use is to draw lightly the draught over at first, that if any thing be drawn amiss, it may be wiped out and amended.

III. The *Feathers* ought to be of a Ducks wing,
(though

Chap. 2. The Instruments of Drawing. 3

(though others may serve well enough) with which you may wipe out any stroke of the Charcoal where it is drawn amiss, lest variety of Lines breed confusion.

IV. *Black and red Lead Pencils*, are to go over your Draught the second time more exactly, because this will not wipe out with your hand, when you come to draw it over with the Pen.

V. *Pens* made of Ravens quills (but others may serve) are to finish the work : but herein you must be very careful and exact, for what is now done amiss there is no altering of.

VI. The *Rulers*, which are of use to draw straight or perpendicular lines, triangles, squares or polygons, the which you are to use in the beginning, till practice and experience may render them needless.

VII. *Compasses* made of fine Brass with Steel points, to take in and out, that you may use black or red Lead at pleasure.

Their use is first to measure (by help of a curious scale of equal parts upon the edge of your Ruler) your proportions, and whether your work is exact which is done with the Charcoal. Secondly, To draw Circles, Ovals and Arches withal.

VIII. *Pastils* are made of several Colours to draw withal, upon coloured Paper or Parchment. Thus,

Take Plaster of Paris or Alabaster calcined, of the colour of which you intend to make your Pastils with, ana q. f. grind them first asunder, then together, and with a little water make them into paste, then with your hands roul them into long pieces like black-lead Pencils, then dry them moderately in the Air : being dried, when you use them, scrape them to a point like an ordinary Pencil.

And thus may you make Pastils of what colour you please, fitting them for the *Faces of Men or Wo-*

men

men, Land-ships, Clouds, Sun-beams, Buildings and Shadows.

IX. To the former add good Copies, Patterns and Examples of good Pictures, and other Draughts, without which, it is almost impossible, that the young Artist should ever attain to any perfection in this Art.

Those that desire to be furnished with any excellent Patterns, Copies or Prints, may have of all sorts, whether of Humane shape, Perspective design, Landskip, Fowls, Beasts, Insects, Plants, Countreys, or any other artificial Figures, exquisitely drawn, at very reasonable rates, where this Book is to be sold.

CHAP. III.

Of the Precepts of Drawing in general.

I. **B**E sure to have all the necessaries aforesaid in readiness, but it will be good to practise as much as may be without the help of your Rule and Compasses; it is your eye and fancy must judge without artificial measurings.

II. *Then first begin with plain Geometrical Figures, as Lines, Angles, Triangles, Quadrangles; Polygons, Arches, Circles, Ovals, Cones, Cylinders and the like. For these are the foundations of all other proportions.*

III. The *Circle* helps in all orbicular forms, as in the Sun, Moon, &c. the *Oval* in giving a just proportion to the Face and Mouth; the mouth of a Pot or Well, the foot of a Glass, &c. the *Square* confines the Picture
you

p. i. Chap. 3. The Precepts of Drawings 5

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you are to copy, &c. the *Triangle* in the half-face; the *Polygon* in Ground-plats, Fortifications, and the like; *Angles* and *Arches* in Perspective; the *Cone* in Spires, tops of Towers and Steeples: the *Cylinder* in Columns, Pillars, Pilasters, and their Ornaments.

IV. Having made your hand fit and ready in general Proportions; then learn to give every object its due shade according to its convexity or concavity, and to elevate or depress the same, as the object appears either nearer or farther off the light, the which is indeed the life of the work.

V. The second Practice of Drawing, consists in forming *Fruits*, as Apples, Pears, Cherries, Peaches, Grapes, Strawberries, Peascods, &c. with their *Leaves*: the imitation of *Flowers*, as Roses, Tulips, Carnations, &c. *Herbs*, as Rosemary, Tyme, Hysop, &c. *Trees*, as the Oak, Fir, Ash, Wallnut, &c.

VI. The third Practice of Drawing imitates, 1. *Beasts*, as the Lamb, Elephant, Lion, Bear, Leopard, Dog, Cat, Buck, Unicorn, Horse, &c. 2. *Fowls*, as the Eagle, Swan, Parrot, Partridge, Dove, Raven, &c. 3. *Fishes*, as the Whale, Herring, Pike, Carp, Thornback, Lobster, Crab, &c. of which, variety of Prints may be bought at reasonable rates.

VII. The fourth Praxis imitates the Body of Man with all its Lineaments, the Head, Nose, Eyes, Ears, Cheeks, Hands, Arms, and Shadows all exactly proportional both to the whole, and one to another, as well to situation as magnitude.

VIII. The fifth Praxis is in Drapery, imitating Cloathing, and artificially setting off the outward Coverings, Habit and Ornaments of the Body, as Cloth, Stuff, Silk and Linen, their natural and proper folds; which although it may seem something hard to do, yet by much exercise and imitation of the choicest

choicest Prints, will become facil and easie.

IX. In drawing of all the foregoing forms, or what ever else, you must be perfect, first in the exact proportions: secondly in the general or outward lines, before you fall to shadowing or trimming your work within.

X. In mixed and uncertain forms, where Circle and Square will do no good (but only the *Idea* thereof in your own fancy) as in Lions, Horses, and the like; you must work by reason in your own judgement, and so obtain the true proportion by daily practice. *Thus;*

Having the shape of the thing in your mind, first draw it rudely with your coal, then more exactly with your lead or pencil; then peruse it well, and consider where you have erred, and mend it, according to that Idea, which you carry in your mind; this done, view it again, correcting by degrees the other parts, even to the least Iota, so far as your judgement will inform you; and this you may do with twenty, thirty, forty or more papers of several things at once: having done what you can, confer it with some excellent pattern or print of like kind, using no rule or compass at all, but your own reason, in mending every fault, giving every thing its due place, and just proportion; by this means you may rectifie all your errors, and step an incredible way on to perfection.

XI. Having then good Patterns and Copies to draw by, the young Artist must learn to reduce them to other proportions either greater or smaller, and this by often and many tryals (as we shall hereafter more particularly teach) this requires great judgement, for in a cut, you shall find neither circumscribing strokes, nor difference between light and light, or shadow and shadow; therefore serious observations are required in the site of those things, whether coming forwards or going backwards.

XII. The

XII. The drawing after Plaister-work, done by skilful Masters, as the Gladiator and children of *Francisco*, the Rape of the *Sabine Women*, the Wrestler, the *Venus of Greece*, *Hercules*, *Hermes*, anatomical Dissections, and other pieces of antiquity, are main and necessary Introductions to attain a perfection in drawing after the life.

XIII. This done, let the young Artist now begin to exercise in drawing after the life; (for that is the compleatest, best, and most perfect Copy, which Nature has set for observation) wherein the liberty of imitation is presented in the largest latitude: and this must be attained by much Practice and diligent Exercise, adjoining the Instructions of a good Master.

XIV. In this Practice of Drawing, let there be a perfection attained, before ever there be the least thoughts of Colours or Painting: for that afterwards all things belonging to Painting, will in a short time be easily and perfectly understood.

CHAP. IV.

Of particular Observations in the Art of Drawing.

I. **I**N drawing after a Print or Picture, put it in such a light, as that the gloss of the Colours hinder not your sight, so as that the light and your eye may equally obliquely fall upon your piece; which place at such a distance, that at opening of your

your eyes, you may view it all at once, the greater your Picture is, the further off you must place it to draw after: the which you must always be sure to put right before you, a little reclining.

II. Then observe the middle of your Picture to be copied, which touch upon your paper with the point of your coal: then observe the most perspicuous and uppermost figures (if more than one,) which touch gently in their proper places, thus running over the whole draught, you will see the Skeleton, as it were, of the work.

But if you go on without these considerations, whereunto your Draught will tend or run; then having ended your work, you will be forced to draw the same many times over and over again, and, it may be, every time to as little purpose; by the tediousness of which, your ingenuity will be dulled.

III. Be secure of a right and true draught, though you do it slowly; what you think may be done in two or three hours, it will be better to bestow two or three days upon: by this means (though you act leisurely, yet you will act prudently, and) you will both sooner and better than can be imagined, attain the perfection of what you desire.

IV. These out-schetches being made, view them diligently, whether they answer your pattern apparently; for the Gestures of the life ought to shew themselves eminently in the first and rudest draughts thereof; without which, be sure your work will be faulty.

V. Having viewed these schetches, begin to correct and amend them (where you find them amiss) and *gradatim* by adding or diminishing a little here and there, as you see it differ from your pattern, you will bring it nearer and nearer to the life.

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This with a Charcoal you may easily do, because you may wipe away what is amiss.

VI. In drawing after Plaister and embossed works, choose a good North light, which let descend from above, not dilating or scattering it self too much, by which you may the more pleasantly shade your work.

If the Room has a South light, put oiled Paper before the window, or if you draw by Candle-light, have a Lamp shaded with oiled paper; for a Candle will grow lower and lower, which causes the shades to change, all which you avoid in a Lamp.

VII. Then set your self down about three times as far from the Pattern as the Pattern is high; so as your eyes in a direct line may view the same: then with a plumb line observe what parts of your Pattern appear to you, by the extending streight thereof, and how one under another they come in sight, and accordingly make your fundamental schetches, as we have just before taught.

VIII. In drawing the Muscles of a human body you must first have either the life or very good patterns made either of Plaister, or drawn in Pictures, enough of which are to be found in Anatomical Books; but chiefly the Book of *Jacob Vander Graecht*, compleated with many varieties and curiosities; from whence the alterations and changes, rising and falling, extension and contraction, and other operations of the Muscles, Arteries and particular members are in imitation of the life excellently depicted.

IX. In drawing after a naked body, all the Muscles are not so plainly to be expressed as in Anatomical Figures; but that side whose parts are most apparent and significant in the performing of any action, most more or less appear according to the force of that action.

X. In young persons the Muscles must not manifestly appear so hard, as in elder and full grown persons : the same observe in fat men, and fleshy, and such as are very delicate and beautiful. And in Women you must scarce express any at all, because that in the life they either appear not at all, or very little, unless it be particularly in some forceable action : and then you must represent them but very faintly, lest you spoil the singular Beauty of the body. The like observe in little Children.

XI. In drawing of these Muscles the motion of the whole body is also to be considered : in the rising or falling of the Arms, the Muscles of the Breast more or less appear : the Hips the like according as they bend outward or inward ; and the same chiefly in the Shoulders, Sides and Neck, according to the several actions of the body : all which alterations are first to be observed in the life.

C H A P. V.

Of the Imitation of the Life.

I. **I**N order hereunto it will be necessary (having fixed a convenient time and place) to choose a good Master, with whom you may spend two days in a week at least ; or else a society of about half a score or a dozen young men, who are experienced to draw after the life, by the advice and example of whom, and your own diligent observations and care, you may come not only to mend one anothers faults, but also one anothers judgements.

II. Then choose a well-shap'd man, one of large
Shoulders,

Chap. 5. *The Imitation of the Life.* 11

shoulders, of a fair breast, strongly muscled, full thighs, long leggs, and of a proportionable height, not too tall nor too short, not too thick nor too slender, but a person every ways of an admirable shape.

III. Let this Exemplar be made to stand in a good posture, representing some noble action of the life, letting the head turn it self to the right side if the left be shadowed; and contrariwise, making the parts of the apparent shoulder somewhat higher than that which is obscured; and the head if it looks upwards, leaning no farther backwards than that the eyes may be seen; and in the turning of it, let it move no farther than that the chin may only approach the shoulder; making also the hip on that side the shoulder is lowest, a little to stick out; and that arm foremost, where the leg is behind, and contrariwise.

IV. The same you must observe in all fourfooted Beasts; and this generally to make the limbs crosswise to cohere together; and in the turning of it forward, backward, upward, downward, sideways, ever to counterballance it by the opposition of other parts, the right knowledge of which is a great step to the Imitation of the life.

V. This done, let him, whose turn it is to begin, first sketch on the paper his own Idea's (being fixed in a convenient place and light, as in the former Chapter) wherein you must endeavour to make every part to agree with the whole, first in form, secondly in proportion, thirdly in action: after this begin again, running over your Draught, bring it to a conclusion, as we shall hereafter teach you.

VI. Observing always, that after you have sketched your whole Figure, that you choose a part) which you most desire to finish) to perfect the same, in regard that with the rest stands in a good posture; the rea-

son is, because time will not always easily permit to finish or compleat a whole Figure, unless it be with expert Artists: it being much better to perfect a part than to leave the whole imperfect; which as each Practitioner arrives and draws nearer to perfection, he may with so much the more boldness, security and certitude attempt the compleating of the whole.

VII. You are also to consider after what manner you would have your Figure to be seen, whether upon even ground, or from aloft; for accordingly you must make the position of your Exemplar.

VIII. Let the young Artist also at his conveniency, sometimes view the Country, and practise upon the drawing of Landships, as much representing Nature (1. in their distance, 2. in their mutual position, 3. in visible aspect) as possible may be: by this means he will come to have a general and compleat understanding in the universal measures of all things.

CHAP. VI.

Of the Imitation of Draughts.

I. **T**He Learner must, by many and often tryals, get a habit of Imitation; which if it be to be done with the Pen, beware of scratching and making thin and lean strokes, but rather broad, which you shall draw from above, downwards; but according to the shades, some of the hatches must be sharp, some broad, some unequal, and some equal.

II. Hold your pen or pencil somewhat long, (and not so upright as when you write,) seeming as though you laid it straight forward: and if they be pastils, accustom

Chap. 6. *The Imitation of Draughts.* 13

accustom your self to turn them in your hand, by this means you will prevent their becoming so soon blunt, and they wearing to a point may serve without scraping the making of a whole Draught.

III. In shadowing of your Draught, you must first begin to do it faintly and smoothly, and straight against the edges of the light, so that it may look as if it had been dash't with a brush-pencil; and then here and there overshadow it again in the darkest shades farther out, and adorn it with hatchings; and where any thing more is required, put the same in nimbly and clearly by gentle touches, the which will add a great grace unto your work.

IV. Doesling (which is a certain besmeering of the work) is to be done with Crions of red or black Chalk, touching the Draught easily all over smoothly and evenly with the points thereof, and not with Cotton or the like put up into Quills, as some use: though that may be done in some cases, as where one work is to be brought into another.

V. If Copies be taken (chiefly upon coloured paper) to make it curious and neat, let the edges of the heightening be smoothed a little (not with cotton, but) with the like coloured paper rouled up to a sharp point at one end, and by this means you will take away the sharpness and hardness of your edges, and make them look sweet and pleasant.

VI. In performance of these things a certain kind of washing is sometimes necessary, performed with Pencils dipt in some coloured liquor, and so laid upon coloured paper; and this is to be done either through the whole work, or in a part thereof, to wit, in some principal flat shades; which may be afterwards loosely wrought over with a Pen or black Chalk, the which will look very pleasantly.

VII. This Washing must be first done very weak and faint, yet smooth (without smoothing of it at the edges, except by a new stroak of your pencil moistened with your tongue; for much smoothing will spoil your work) this first washing being dry, go over again with your work, yet only those parts where there ought to be a darker shade; and afterwards again give some deeper and harder touches without smoothing, the which will very much set your work off.

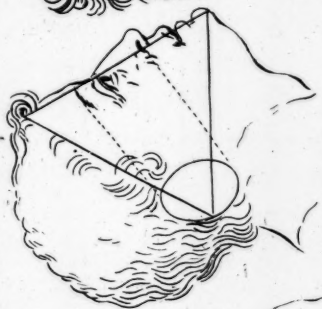
VIII. Faint shadows, and things obscure, must be presented as faintly as may be, chiefly upon coloured paper, where the heightning helps you; but beware you go not too often over your shades, lest you spoil them, by making them too hard and ill-favoured.

IX. In drawing, whether it be after a Draught or the Life; first observe the thing in general, in respect of the circumferent stroaks; for them are they, which bound and contain all the parts of the whole, and without which the particular parts can never be perfectly distinguished, nor represent themselves in their being: This done, then consider in like manner the parts, and supposing the parts each to be a whole; you may come to represent the parts of parts, and by the same means to express the whole of any Draught whatsoever.

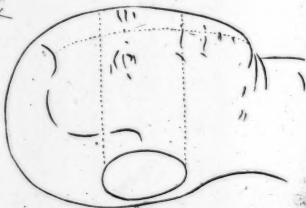
C H A P:







W. Stearns / c



C H A P. V I I.

Of Drawing the Face of a Man.

IN drawing of the Face you are first to observe its motion whether upwards, downwards, forwards, or sideways ; whether it be long or round, fat or lean, great or little.

For if it be fat, the cheeks will seem to swell : if lean, the jaw-bones will stick out, and the cheeks fall in ; but if neither too fat nor too lean , it will be for the most part round.

I I. Touch lightly the features where the eyes , mouth , nose and chin should stand , (having first drawn the circle or oval of the Face) then make a stroak down from that place of the forehead which is even with the chin , coming down where you should place the middle or tip of the nose , and middle of the mouth , which stroak must be made straight down in a full right Face , but arched or oval in an oblique Face , leaning that way towards which the Face doth turn : then cross the stroak about the middle of the eyes , either with a straight line in a right Face , or with a Curved either upwards or downwards according to the present action or posture of the Face : then make another answerable to that , where the end of the nose should come ; and another for the mouth that it be not made crooked.

I I I. This Cross is difficult to be understood *in plano* ; but upon a Face made upon a solid body , in form or shape of an Egg , the several variations of the said cross are most excellently demonstrated : and from

hence may the learner understand all the alterations of a Face, and thereby draw it all manner of ways, as sideways, upwards, downwards, forwards, backwards, &c. and that only by the motion of the said oval solid, accordingly as in the following Figures you may easily perceive.

I V. Then if the face look upwards towards Heaven, or downwards towards the Earth, let the Eyes, Nose, Mouth and Brows look accordingly with it; and now proceed to the placing of the Features.

V. In a just proportioned Face, the distances, 1. between the top of the forehead and the eye-brows; 2. between the eye-brows and the bottom of the nose, 3. between the bottom of the nose and the bottom of the chin are equal.

VI. In drawing the utmost Circumference of a Face, take in the Head and all with it, lest you be deceived in drawing the true bigness.

VII. Then consider all those chief touches which give life to a face, adding grace thereto, and something discovering the disposition of the mind.

So the mouth extended and the corners a little turning up, shews a smiling countenance: the eye-brow bending, and the forehead and top of the nose between the eye-brows wrinkled, shews one frowning: the upper eye-lid coming something over the ball of the eye, shews one sober and stayed: with many other touches which give life and spirit to a face, which in good prints, by little and little, and diligent observation you will at last find out.

VIII. The distances between the eyes, is the length of one eye in a full face, but in a three-quarter or half-face, it is lessened proportionably: and exactly underneath the corners of the eyes place the nostrils.

IX. Having





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Chap. 7. Drawing the Face of a Man. 17

I X. Having given touches where the eyes, nose, mouth and chin should be placed, begin to draw them more exactly, and so proceed till the Face be finished; and then make the hair, beard, shadows, and other things about it.

X. Be sure to make the shadows rightly, and be sure not to make them too dark, where they should be faint; for that can never be made light again, and so the whole Face is mark'd.

The shadows are fainter and lighter in a fair Face than in a swarthy.

X I. When you have finished the Face, give here and there some hard touches with your pen where the shadows are darkest; then come the ears and hair, wherein having drawn the out-line, draw the principal curls, or master stroaks in the hair, which will be a guide to you in the lesser curls, whose dependance are on them: alway make the curls to bend exactly according to the pattern, that they may lie loose, or carelessly, and not as if they were stiff and forced; the curls being rightly drawn, in the last place strike in the loose hairs which hang scatteringly out of the Circles.

X I I. In forming the Ear, describe an oval as it were, and proceeding lightly, joyn stroak to stroak, in such manner as you see in the Figures; so that the ear may be entirely formed, without digressing from the bounds of Nature or Art.

X I I I. Lastly having practised a little by rule, and brought your hand in; in drawing of any thing, first strike the out-stroaks, principal veins and muscles lightly, and afterwards shadow them, ever following exquisite patterns and prints, which will both encrease your judgement, and bring command to your hand.

C H A P. VIII.

Of Drawing the Extreme parts.

I. **I**N drawing the Hands, draw not all the joints, veins or other things to appear plainly, but only lightly and faintly, and strike out the bigness of the hand and the manner of its turning with faint touches, and not with hard stroaks; then that being done right, part the fingers according to the pattern with like faint stroaks; then mark that place where any of the fingers do stand out from the others, with a faint resemblance: this done, proceed to draw it more perfectly, making the bending of the joynts, the wrists and other principal things more exactly; and lastly, go over with it again, drawing every small bending or swelling of the fingers, nails, knuckles and veins, to many as do appear.

II. Learn by good prints the just proportions of the hands, with their equal distances, observing this rule, that according as it turns one way or another, to shorten proportionally as they appear to the eye.

For so much as it turns away from our eye, so much it loses in proportion, yea sometimes a whole finger, two or three or more is lost to our sight, which you must accordingly answer in your draught.

III. In drawing of the feet, the same rules which we even now enumerated, at the first and second Section of this Chapter, are to be understood here.



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C H A P. IX.

Of Drawing the whole Body.

I. **F**irst begin with the head, and be sure to give it its just proportion, answerable to what you intend the whole body shall be; then draw the shoulders in their exact breadth; after them, the trunk of the body beginning at the arm-pits, and so drawing down to the hips on both sides, observing withal the exact breadth of the waste: lastly, draw the legs, arms and hands, exactly to your pattern.

II. But first draw with a coal, and that very lightly and faintly, drawing nothing perfect (that you may the easier mend it if it be amiss) and then afterwards finish one thing after another as curiously as you can.

III. Let the parallel sinews, muscles, veins and joynts, be placed opposite one to another in a straight line (as shoulder to shoulder, hip to hip, knee to knee, &c.) for which purpose draw straight cross lines to guide you therein; observing that which way soever the body turns or bows, these lines may answer accordingly.

IV. Let all perpendicular joints, and parts also, be placed in a right line one under another (as they are in your pattern) for which end, draw a straight line (if the body be straight) from the throat thorow the middle of the breast and privities, to the feet, to which line draw all those particular points parallels, that the body may not appear crooked or awry.

V. In bowings and bendings of the body, let the extuberance of the outward part be just equal to the compression of the inward part; making all things of an equal proportion, that as opposite parts may be equal (as the arm to the arm, leg to leg, &c.) so every part may be proportionable to each other, (as the Hand not too big for the arm, nor the arm for the body, nor the body for the legs, &c.) only with this difference, that (as the one part may appear fully to the eye, or the other may turn away either in part or in whole, or be seen side-way) it be made so much less than the other, by so much as it turns away from the sight.

VI. As you observe a just proportion in bigness, so also in length, that as every opposite part be of equal length, so that each part may not be too long one for another, but according to the proposed magnitude: And in this case that if the body by awry, or any ways hid, those parts may shorten accordingly, to what is out of sight.

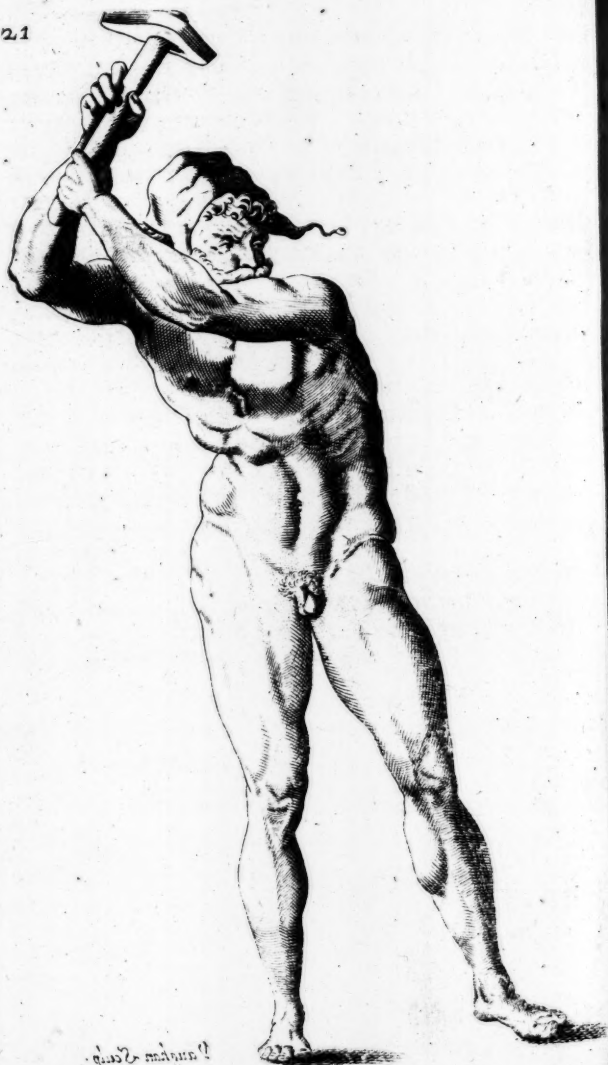
VII. Lastly, Observe the just distance of one thing from another, for by that means you will be more exact in your draught; and in short time, perfectly imitate your pattern or nature.

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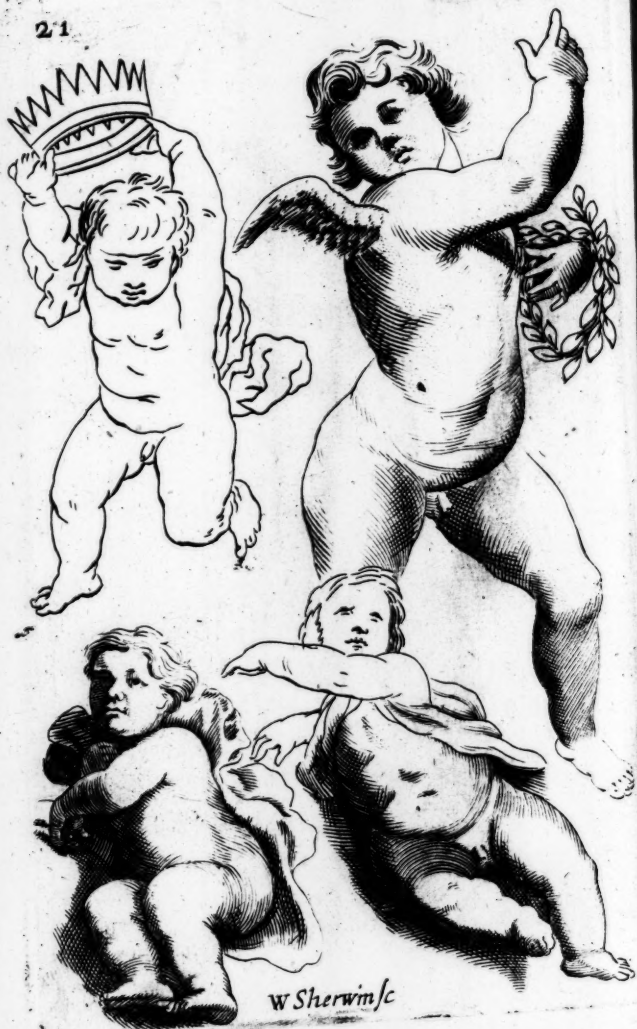
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C H A P. X.

Of Drawing a naked Body.

I. **I**N drawing after the life, as there are variety of faces, so no certain Rules can be delivered for the same; yet the following precautions may be useful.

II. Draw out the head in an oval, one fourth part for the hair, one fourth part for the forehead and brows, one fourth for the nose, and the last for the mouth and chin.

III. Having drawn out the head, measure out eight times the length of the head (the head making one of the eight parts) and draw a straight line from the top of the head to the sole of the foot.

IV. One heads length from the chin is for the breast; the next eighth part reacheth to the navel, the fourth part to the privities, the fifth part to the middle of the thigh, the sixth part to the lower part of the knee, the seventh to the small of the leg, and the eighth part to the heel.

V. The muscles you must observe to draw exactly as they are in the life: the breadth of the shoulders, is about two measures of the head: the breadth of the hips, two measures of the face: the arms stretched out, are just the length of the whole figure, the breasts also accounted; but without the breasts they are but six.

VI. The arms hanging straight down reach within a span of the knee: the length of the hand is the just length of the face. See the two figures following.

VII. Ob.

VII. Observe first to draw the head exactly, and next, the shoulders in their just breadth: then draw the trunk of the Body, and the rest as at the first Section of the ninth Chapter.

VIII. Be sure to place the joynts, sinews, and muscles in their natural places, and also proportionately; in respect of Magnitude, Similitude, and Parts: lest it seem crooked and deformed.

IX. See that every parallel joynt bend moderately, so as to answer in nature its opposite.

CHAP. XI.

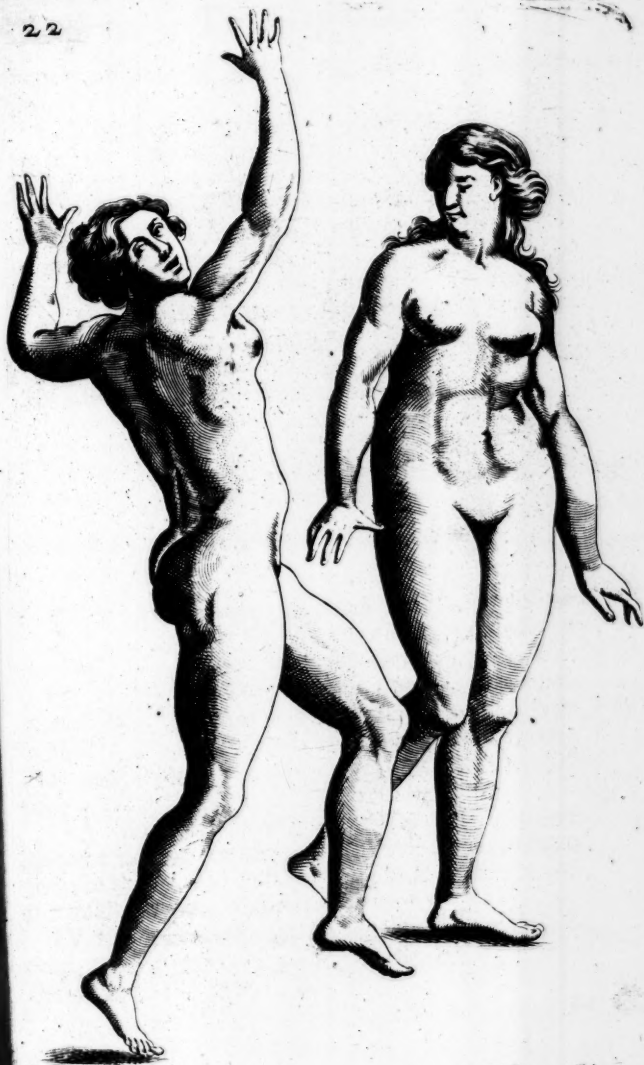
Of Shadowing a Naked Body.

I. **T**He Shadows of the Neck, in a child or young woman, are very fine, rare and hard to be seen: In a man, the sinews and veins are expressed by shadowing of the rest of the neck, and leaving them white: the shoulder is shadowed underneath: the brawn of the arm must appear full and white, shadowed on one side.

II. The veins of the back of the hand and the knuckles are made with two or three hair stroaks with a fine touch of the pen.

III. The paps of a man are shewed by two or three stroaks given underneath, in a woman with an orbicular shade, somewhat deep; the ribs retain no shadow except you represent one lean or starved.

IV. The belly is made eminent by shadowing underneath the breast bone and the flank: The brawn of the thigh is shadowed by drawing small hair stroaks from



from the hip to the knee, and crossed again overthwartly.

V. The knee is to be finely shadowed underneath the joint; the shin-bone appears by shadowing one half of the leg with a single shadow.

VI. The ankle-bone appears by shadowing a little underneath (as in the knees) and the sinews thereof must seem to take beginning from the midst of the foot; and to wax bigger as they grow nearer to the toes.

VII. Lastly, the shadows of the foot must take place according as reason and occasion requires, for which (as also in all the former precepts) the having of good prints will be no small advantage unto you.

CHAP. XII.

The way and manner of Shadowing.

I. IF it be a surface only, it is best shadowed by drawing lines either straight or oblique, (according as the superficies is) through the better half thereof.

II. If it be in a body, it is a double shadow, and is used when a superficies begins to forsake your sight, as in Columns and Pillars, where it is double darkened, and representeth to the eye, as it were the backside, leaving that unshadowed to the light.

III. The treble shadow is made by crossing over again the double shadow, and is used for the inward parts of things, as in clefts of the earth, wells, caves, the insides of pots, cups and dishes.

IV. In shadowing, let the shadow always fall one way, that is, on the same side of the body; leaving the other to the light.

So in drawing a man, if I begin to shadow his right cheek, I must shadow the right part of his neck, arm, side, thigh, leg, &c.

V. But if the light side of the body be darkned by the opposition of some other body standing between the light and it, it must receive a contrary shadow according as the light is obfuscated.

So if three pillars stand together, that in the midst must receive a shadow on both sides.

VI. All circular bodies must have a circular shadow (by the first Section of this Chapter) according to their form or appearance, and the orbicular shadow of the object which casteth it.

VII. Let your shadow grow fainter and fainter, according to the greatness of the distance from the opacous Body shadowing.

And the reason is, because all shadows are pyramidal, in which case, space of place prevails with the light against the shadow.

VIII. Where contrary shadows concur, let the meanest and most solid body be first served; and in double and treble shadows, let the first lines be very dry for fear of blotting, before you cross them.

IX. All perfect lights receive no shadow at all; but being manifest, are only to be made apparent by that body which receives them; whose shadow must be according to the efflux of light: but the colour of the light ought to agree with the medium which receives it, whether it be Air, Crystal, Water, Amber, Glass, Transparent-wine, or the like.

C H A P. XIII.

*Of Expressing Passions in the
Countenance.*

I. **L**ove is expressed by a clear, fair and pleasant Countenance, without clouds, wrinkles, or unpleasant bendings : giving the forehead an ample height and breadth with majestick grace ; a full eye with a fine shadow at the bottom of the eye-lid, and a little at the corner : a proportionable nose ; nostrils not too wide : a clear cheek made by shadowing of it on one side : and a smiling mouth made by a thin upper lip, and shadowing the mouth-line at the corners.

II. *Fear* is expressed by making the eyes look hollow, heavy and downward, thin fallen cheeks, close mouth, and staring careless hair about the ears.

III. *Envy* is best decyphered by the only hanging of the cheeks, and a pale countenance ; and sometimes by grinning of the teeth.

IV. Let every Passion be represented according to the outward appearance thereof, as it is in those persons in whom it reigns ; observing the rules at the 6th Section of the seventh Chapter.

C H A P. XIV.

Of Humane Proportion.

I. **T**HE length of an upright body is equal to eight times the length of the face or head: The arm hanging straight down, reacheth within a span of the Knee: The length of the hand must be the length of the face: The arms extended must be the just length of the body.

II. Those parts of the body near to the Eye must be made greater and longer than those farther off, (because the eye judgeth so of them) and according to the distance from the eye, so must you vary from that which is otherwise the real true proportion of those parts.

III. In foreshortening you must take things as they appear to the eye, and not to draw the full proportion of each part, but to shorten all, according to the rate or reason which is obfuscated.

So if you would draw a ship foreright, there can appear but only her forepart (for the rest being hid cannot be expressed:) the like of an horse looking full in my face, or a man lying along; I must here of necessity foreshorten, to express the Visual property: And in this case your eye and reason must be your chief guide to give the true reason and measure of these appearances, whether in Drawing, Limning or Painting.

IV. The use of this foreshortening is to express all manner of actions in man or beast; to represent many things



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things in a little room; to shew at one view to the eye and mind, the whole body of a Temple, with all its arches and pillars whether the inside or outside, as also the sundry sides of Cities, Castles and Forts, and such like.

Lastly, That in every case you make Nature the pattern of all draughts, so that nothing be exprest, but what doth agree and accord with nature; and that nothing be either forced beyond nature, not yet any thing to come short of nature.

As if in drawing the picture of a man, be sure you draw not such a posture as is impossible for him to imitate with his natural body.

C H A P. XV.

Of Drapery.

I. **D**raw the out-lines of the Garment lightly, and herein be careful, for the whole grace of the picture lies there; then draw the greatest folds first, and stroak those into lesser; and be sure they cross one another.

II. Sute your garments to the body and make them bend with the body, according as it stands in or out, straight or crooked, or turns one way or another: the closer the garment sits to the body, the narrower and smaller must the folds be.

III. All your folds must consist of two lines and no more, which you may turn with the garment at pleasure; shadowing the innermost deeper, the outer-

most more light ; and if the folds be never so curiously contrived , spare not to shadow them (if they fall inward from the light) with a double or treble shadow, as the occasion requires.

IV. The greater folds must be continued through the whole garment, the lesser you may break off and shorten as you please.

V. The shades of silk and fine linnen are very thick and small, which require little folds and a light and rare shadow, commonly but double at most ; and so also fine Drapery requires more and sharper folds than course.

VI. That part of a garment which fits close to the body must not be folded at all, but only sweetly shaded, to represent the part of the body which lies under it.

VII. Observe the motion of the wind and air, for driving loose apparel all one way, drawing that part of the garment first which lies highest and closest upon the body, before you draw the looser part that flies off from the body, *lest by drawing the loose part of the garment first you should be out, and so place the body crooked or awry.*

CH A P. XVI.

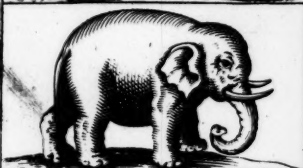
Of mixed and uncertain Forms.

I. **F**OR the drawing the form of any beast, begin with your lead or coal at the forehead, drawing downward the nose, mouth, upper and nether chop, ending your line at the throat ; then viewing it again where you begun, from the forehead, over the head,





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head, ears, and neck, continuing till you have given the full compass of the buttock, then mark out the legs and feet: Viewing it again touch out the breast with the eminency thereof; Lastly, finish the tail, paws, tongue, teeth, beard, and several shadows.

II. In drawing beasts you must be well acquainted with their shape and action, without which you shall never perform any thing excellent in that kind: and here if you draw it in an Emblem or the like, you ought to shew the Landskip of the Country natural to that beast.

III. In birds begin also the draught at the head, (and beware of making it too big) then bring from under the throat the breast line down to the legs, there stay and begin at the pinion to make the wing, which being joyned to the back line will be presently finished: the eye, legs and train must be at last, letting always (in birds as in beasts) the farthest leg be shortest; their feathers (as the hair in beasts) must take their beginning at the head very small, and fall in one way backwards in five ranks, greater and greater to the conclusion.

IV. Insects, as flies, bees, wasps, grasshoppers, worms, and such like, are easie to be drawn and not hard to be laid in Colours; in doing these, it will at first be absolutely necessary to have the living pattern before your eyes.

V. To draw a flower, begin from the boss tuft or wart in the middle; as in a Rose or Marigold, with the yellow tuft, which being made, draw lines equally divided, from thence to the greatest compass or extent of your flower: you may draw them either fully open or in the bud, and laden with dew, wet and worms, and then you may draw rudely with

the coal or lead the leaves afterwards, giving them their veins or jaggedness.

VI. To take the natural and lively shape of the leaf of any herb or tree.

First, take the leaf that you would have, and gently bruise the ribs and veins on the back-side of it: afterwards wet the side with linseed oyl, and then press it hard upon a piece of clean white paper, and so you shall have the perfect figure of the said leaf, with every vein thereof so exactly exprest, as being lively coloured it will seem to be truly natural.

CHAP. XVII.

Of Landskip.

I. **L**andskip is that which expresth in lines the perfect vision of the earth, and all things thereupon, placed above the horizon, as towns, villages, castles, promontories, mountains, rocks, valleys, ruines, rivers, woods, forests, chafes, trees, houles and all other buildings, both beautiful and ruinous.

II. First, Always exprest a fair horizon, shewing the heavens cloudy or clear, more or less according to the occasion; and if you exprest the Sun, let it be either as rising or setting, and as it were behind or over some hill or mountain.

The Moon and Stars are seldom or never depicted, unless it be in representation of twilight; because all things are supposed to be seen by day.

III. Secondly, If you exprest the Sun, make his light to reflect upon all the trees, hills, mountains, rocks, or buildings; shading the contrary side, after wick manner



manner also shadow clouds, mists, and the like : making the shadows to fall all one way.

IV. Thirdly, be very careful to augment or lessen every thing proportionably to their distance from the eye, making them either bigger or lesser.

V. In expressing things at large distances, as ten, twenty or thirty miles off; where the object is hard to be discerned, as whether it be Temple, Castle, House or the like; shew no particular signs thereof, or any eminent distinction; but rather as weakly, faintly, and confusedly as the eye judgeth of it.

VI. If Landskips be laid in Colours, the farther you go, the more you must lighten it with a thin and airy blew, to make it seem as if it were afar off, beginning at first with a dark green, so driving it by degrees into a blew, according to the distance.

VII. Make your Landskip to shoot (as it were) away, one part lower than another, making the nearest hill or place highest, and those that are farther off, to shoot away under that, that the Landskip may appear to be taken from the top of an hill.

VIII. Let every thing have its proper motion, as *in trees* when they are shaken with the wind, making the smaller boughs yielding; the stiffer less bending: *in clouds* that they follow the winds: *in rivers*, the general current, and flashing of the waters against the boat sides: *in the Sea*, the waves and other proper agitations; and lastly, *let every thing* which moveth, whether essentially or accidentally, have its proper representation.

IX. Let your work imitate the season you intend it for.

*As if you intend it for a winter piece, represent fel-
ling*

ling of wood; sliding upon the Ice; fowling by night; hunting of Bears or Foxes in the snow; making the trees every where naked or laden with the hoar frost; the earth bare without greenness, flowers or cattel; the air thick; water frozen, with Carrs passing over it and boyes upon it, &c.

X. Lastly, let every site have its proper *parerga*, adjuncts, or additional graces, as the Farm-house, Wind-mill, Water-mill, Woods, Flocks of sheep, Herds of cattel, Pilgrims, ruins of Temples, Castles and Monuments; with a thousand such other only proper to particular subjects.

CHAP. XVIII.

Of Diapering and Antique.

I. **D**iapering, is a tracing or running over your work again when you have, as it were, quite done, with damask branches, and such like.

It is used to counterfeit cloth of gold, silver, damask, velvet, chamlet and the like, with what branch and in what fashion you please: it is derived from the Greek word διατεχω, transeo, to pass over, and only signifies a light passing over the same again.

II. If you Diaper upon folds, let your work be broken off accordingly, and taken as it were by the half.

For reason sheweth that the fold covereth something which cannot be seen, by reason of it, which if it was drawn out at length would appear plain.

III. Let the whole work be homogeneous; that is, let

Chap. 18. Of Diapering and Antique. 33

let the same work be continued throughout the whole garment, setting the fairest branch in the most eminent and perspicuous place, causing it to run upwards, for else your work would be ridiculous.

I V. You may either shadow the ground and leave your work white; or shadow your work and leave the ground white; and as you shall please in this kind, your filling may be with small pricks, which will shew very fair.

V. Antique (*ab antes*) are butteresses whereon the building is stayed, as also the outwardmost ranges, used in fore-fronts of houses, in all manner of Compartments, curious Architecture, Armour, Jewels, and Columns.

VI. The form of it is (only for delights sake) a general or irregular composition of men, beasts, birds, fishes and flowers and such like, without either rule or reason.

VII. Lastly, observe the continuation of one and the same work, through the whole piece, without the least change or alteration.

As if it be naked boys, playing, laying, sitting, or riding upon Goats, Eagles, Dolphins and the like; strings of pearl, Satyrs, Tritons, Apes, Dogs, Oxen, bearing or drawing Fruits, Branches, or any wild fantasie after your own invention, with a thousand such other idle toys; be sure you observe the continuation.

CHAP. XIX.

To take the perfect draught of any Picture:

I. **T**AKE a sheet of fine *Venice* Paper, wet it all over with linseed oyl on one side thereof, which then wipe off as clean as you can; let the Paper dry, and lay it on any painted or printed Picture, then with a black-lead pen you may draw it over with ease: put this oyled paper upon a sheet of clean white paper, and with a little pointed stick or feather out of a swallow's wing, draw over the stroaks which you drew upon the oyled paper; so shall you have the exact form upon the white paper, which may be set out with colours at pleasure.

II. *Or thus*, The picture being drawn as before in the oyled paper, put it upon a sheet of white paper, and prick over the drawing with a pen: then take some small coal, powder it fine, and wrap it in a piece of some fine linnen, and bind it up therein loosely, and clap it lightly all over the pricked line by little and little, and afterwards draw it over again once or twice, with pen or pencil.

III. *Or thus*, Rub a sheet of white paper all over on one side with black-lead, or else with vermilion mixed with fresh butter; lay the coloured side upon a sheet of white paper, then lay the picture you would copy out upon the other side of the coloured paper, and with a small pointed stick or swallows quill, go over all the stroaks of your picture, and it will be exact on the white paper.

IV. *Or thus*, Lay a piece of Lanthorn horn upon the picture,

Chap. 19. To take a perfect draught. 35

picture, then draw the stroaks of your picture with a hard nibbed pen upon the horn; and when it is dry, breath upon the horn twice or thrice, and press it hard upon white paper a little moistned.

V. *Or thus*, Take an oyled sheet (as at the first Section of this Chapter) rub one side of it with lamb-black or lake; lay it upon a sheet of fair paper with the coloured side downwards, and upon it lay the picture you would copy out, and trace it over with a swallows feather.

VI. *Or thus*, Take fine lake mixed with linseed oyl, and draw with it, instead of Ink, all the out-stroaks of any picture, and other material parts; then wet the contrary side of the picture and press it hard upon a sheet of paper, and it will leave behind it all that which you drew over.

VII. *Or thus*, Grind Printers black fine, and temper it with water, and with a pen dipt in it, draw over the out-lines and master stroaks: wet then some white paper with a sponge or the like, and press it hard thereupon; and you shall have the stroaks you drew upon the white paper.

VIII. *Or thus*, Lay the print (the back-side of it) upon a clear glass, or oyled paper, then lay a clean paper upon the print; hold it up against the light, so will you see all the stroaks which you may draw out, and shadow also if you please.

C H A P. . X X.

To extend or contract a Picture keeping the proportion.

I. **E**Ncompass your picture with one great square, which divide into as many little ones as you please: this done, according as you would have your picture either greater or less, make another square greater or less, which divide into as many equal squares which be drawn with a black-lead plummet.

II. Take your black-lead pen, and draw the picture by little and little, passing from square unto square (by the example of the pattern) until you have gone all over with it: observing that in what part of the square the picture lies, you draw the like part in the square answerable thereto, till you have finished the whole.

III. Then draw it over with a pen, in which second drawing of it you may easily mend any fault, and shadow it at pleasure.

IV. *Lastly*, When it is thoroughly dry, rub it over with the crum of white-bread, and it will take off all the black-lead stroaks, so will your draught remain fair upon the paper.



CHAP. XXI.

Of Perspective in general.

OΠΤΙΚΗ in Greek, *Perspectiva* in Latin, the Art of seeing in English; is that by which we behold, contemplate, and draw the likeness of all magnitudes, just in form and manner as they appear to the Eye.

II. The matter to be seen or speculated is a magnitude: the manner of speculation is by radiations of Light, either direct, reflected or broken.

III. A magnitude is that which hath form; and it is either lineal, superficial, or solid; that is, either a complication of points, a complication of lines, or a complication of superficies.

VI. A line is a complication of points; that is (according to *Euclid*) a length only without either breadth or thickness.

V. A superficies is a complication of lines; that is, a length having breadth without thickness.

For as the continuation of points makes a line: so the couching of lines makes a superficies: which is only the laying of points cross-wise.

VI. A solid is a complication of superficies; that is, a length and breadth, having depth or thickness.

And indeed it is nothing but the continuation of points upon a superficies either perpendicularly or bending.

VII. The Contemplation of the Object represents the matter to the mind, in the same manner as its outward appearance doth to the Eye.

And from hence comes Judgment where by the Artist is enabled

enabled to describe the same in lines; and delineate it, according to its apparent or visual proportions.

VIII. To draw or describe the Appearance in lines is the active part of this Art, whereby the Idea conceived in the mind (by sight and contemplation) is brought to light.

IX. A radiation is a beam of light, conveying the likeness of the thing, to the Eyes, or sight; and the Knowledge thereof to the mind or understanding.

And this radiation is twofold, either external from the external light, or intellectual from its being and power.

X. Direct radiations are those which consider the direct or streight beams, which pass between the eye and the object.

And this is the first kind of perspective; and is many times (alone) called the Opticks.

XI. Reflected radiations are those which consider the reflection of beams, and their shape upon any polish'd body, as on a Globe, Cone, Cylinder, Pyramid, or any regular solid.

And this is the second kind of Perspective; which is called the Art Catoptrica.

XII. Broken radiations are those which consider the breaking of beams, as they are to be seen through a glass or a Crystal cut into several plains or superficies.

And this is the third and last kind of Perspective, which is called the Art Dioptrica.

C H A P. X X I I.

Of the Active part of Perspective.

I. **T**He active part of perspective is either *Ichnographical, Orthographical, or Scenographical.*

II. *Ichnographia*, is the description of the plain base or bottom of any body or building.

III. And it is twofold, to wit, either *Geometrical* or *Scenographical.*

IV. *Ichnographia Geometrical*, is that which gives the sight of the bottom or base of any body or building.

So a Circle is the base of a Column; and a Square is the base of a Pedestal, and the like; but this Geometrical Ichnography is not seen in Section, or through a Glass, unless it lies parallel to the base; and so it makes no Section with it.

V. *Ichnographia Scenographical* is the Appearance of the same base in Section, or through a Glass, erected upright on the same plain, on which the base stands.

And by this the said base is extended in length but contracted in breadth, for so it appeareth to the eye.

VI. *Orthographia*, is the vision of the foreright side of any plain; to wit, of that plain or superficies which lies equidistant to a right line, passing through the outward or convex centers of both eyes, continued to a due length.

And therefore Perspective Orthographia, is the delineation of the apparent right plain.

Scenographia is the description of a plain or other figure

figure, that declines from the apparent or foreright plain; that is of that plain which makes Angles with the said foreright plain.

The Scenographick vision of any form, body, or building is, of that side which declines from, or constitutes an Angle, with the right line, passing from the convex centers of both Eyes aforesaid: this Artists call the return of the foreright side. Now the difference between the Orthographick And Scenographick vision is this; the Orthographick shews the side of a body or building as it is beheld when the plain of the Glass is placed equidistant to that side: but the Scenographick shews the side of a body or edifice as it appears through a glass raised obliquely to the said side, or making an angle therewith.

CHAP. XXIII.

Of the Subject to be seen.

I. **T**He Base of any thing is the plain, flat, or floor upon which any solid body, or object is placed, or raised.

II. The *Altitude* or height is the perpendicular space of place, between the base and eye, or height of the visual point above the base.

III. The *Visual point*, is a point in the Horizontal line, wherein all the beams of the eyes unite.

Exempli gratia. If you look on a long straight river, the sides of which run parallel, yet by reason of the distance both sides of the river (although it be very broad) will seem to incline, touch, and unite with each other in one common point or center: and so if you look on a long, straight

Chap. 23. • Of the Subjects to be seen. 41

straight brick-wall, the several lays of brick, and courses of mortar, will (at a great distance) seem to incline each to other in one common point or center; this point reflected on a glass raised upright on the base, is called the visual point.

IV. The *Horizontal line* is a line proceeding from the center of the eye to the visual point, parallel to the Horizon of the Earth.

And this is, in men of ordinary height or stature, commonly about five foot from the ground or base.

V. The *Distance* is the space on the base between the Glass and point in the base which lies directly under the eyes.

VI. The *Section* is a plain of transparent or per-lucid matter (as of Glass) raised upright upon the plain of the base standing before you, parallel to a straight line, passing through the convex centers of both Eyes.

Without the knowledge of this Section or Glass it is utterly impossible to understand perspective, or know what it means: Or be able to give a reason for the difference between the Orthographick and Scenographick figure.

VII. If the Glass is placed near the visual point, and far from the object, the figure which is seen will be very small: and the reason is, because all rays comprehending the Orthographical and Scenographical figures (though more remote from the object) fall into the visual point, as their common center.

VIII. If the visual point be more elevated (though at the same distance) the Scenographick figure or form will appear of a much larger magnitude: because the visual radiations being higher, the various perpendiculars raised on the Section or Glass, cut them in wider distances, because more remote from the Glass.

D

IX.

IX. If the Glass incline to the visual point, the Scenographick vision will be long-wise between the visual point and the object.

And the reason is, because the plain of the Glass heaps in more of the visual Radiations.

X. If the Glass recline from the visual point, the Scenographick figure will appear rounder, and begin to resemble the Orthographick.

XI. But if the Glass is fixed equidistant to the base, or plain the object stands upon; the Scenographick and Orthographick resemblance will be one and the same.

And the reason is, because the form of the figure is lost, or not visible in the Section.

XII. The *Visual Raies*, are those lines which proceed from the visual point, through the Glass, to any point higher or lower than the plain of the Horizon.

XIII. *Diagonals*, or lines of distance, are such as are drawn from the point of distance to any other point, higher or lower than the Horizon.

XIV. The *Object*, is that form, figure, body or edifice intended to be expressed in *Perspective* proportions,

C H A P. XXIV.

The General Practice of Perspective.

I. **L**et every line which in the Object or Geometrical figure is straight, perpendicular, or parallel to its base, be so also in its Scenographick delineation.

II. Let the lines which in the object return at right Angles from the fore-right side, be drawn Scenographically from the Visual point.

III. Let all straight lines, which in the object return from the fore-right-side, run in a Scenographick figure into the Horizontal line.

IV. Let the object you intend to delineate standing on your right hand, be placed also on the right hand of the visual point: and that on the left hand, on the left hand on the same point: and that which is just before, in the middle of it.

V. Let those lines which are (in the object) Equidistant to the returning line, be drawn in the Scenographick figure, from that point found in the Horizon.

VI. In setting off the altitude of Columns, Pedestals and the like, measure the height from the base-line upward in the front or fore-right-side; and a visual ray drawn, that point in the front shall limit the altitude of the Column or pillar, all the way behind the fore-right-side or Orthographick appearance, even to the visual point.

This rule you must observe in all figures, as well where there is a front or fore-right-side, as where there is none.

VII. In delineating Ovals, Circles, Arches, Crosses, Spirals and Cross-arches, or any other figure, in the roof of any room; first draw Ichnographically, and so with perpendiculars, from the most Eminent points thereof, carry it up unto the Ceiling, from which several points carry on the figure.

VIII. The center in any Scenographick regular figure is found by drawing cross-lines from opposite angles: for the point where the Diagonals cross is the Center.

IX. A ground plain of squares is alike, both above and below the Horizontal line; only the more it is distant above or beneath the Horizon, the squares will be so much the larger or wider.

X. In drawing a perspective figure, where many lines come together, you may for the directing of your eye, draw the Diagonals in red; the visual lines in black; the Perpendiculars in green, or other different colour from that which you intend the figure shall be of.

XI. Having considered the height, distance and position of the figure, and drawn it accordingly, with side or angle against the base; raise perpendiculars from the several angles or designed points in the figure, to the base, and transfer the length of each perpendicular, from the place where it touches the base, to the base on the side opposite to the point of distance; so will the Diametrals drawn to the perpendiculars in the base, by intersection with the Diagonals drawn to the several transferred distances, give the angles of the figure: and so lines drawn from point to point will circumscribe the Scenographick figure.

XII. If in Landskip there be any standing waters, as Rivers, Ponds, and the like; place the Horizontal

Chap. 24. *The practice of Perspective.* 45

horizontal line level with the farthest sight or appearance of it.

XIII. If there be any houses or the like in the picture, consider their position, that you may find from what point in the Horizontal line to draw the fronts and sides thereof.

XIV. In describing things at a great distance, observe the proportion (both in magnitude and distance) in draught, which appears from the object to the eye.

XV. In colouring and shadowing of every thing, you must do the same in your picture which you observe with your eye, especially in objects lying near; but according as the distance grows greater and greater, so the colours must be fainter and fainter, till at last they lose themselves in a darkish sky colour.

XVI. The *Catoptricks* are best seen in a common looking-glass or other polish'd matter, where if the glass be exactly flat, the object is exactly like its original: but if the glass be not flat, the resemblance alters from the original, and that more or less, according as the glass differs from an exact plain.

XVII. In drawing *Catoptrick* figures, the surface of the glass is to be considered, upon which you mean to have the reflection; for which you must make a particular *Ichnographical* draught or projection; which on the glass must appear to be a plain full of squares, on which projection transfer what shall be drawn, on a plain divided into the same number of like squares: where though the draught may appear very confused, yet the reflection thereof on the glass will be very regular, proportional and really composed.

XVIII. The *Dioptrick* or broken beam may be seen in a tub, through a Crystal, or Glass, which hath its

surface cut into many others, whereby the raies of the object are broken.

For to the flat of the Crystal or water, the raies run streight; but then they break and make an Angle, the which also by the refracted beams is made and continued on the other side of the same flat.

XI X. When these faces on a Crystal are returned towards a plain placed directly before it, they separate themselves at a good distance on the plain; because they are all directed to various far distant places of the same.

XX. But for the assigning to each of them a place on the same plain, no Geometrick rule is yet invented.

CHAP. XXV.

[*A Rational Demonstration of Chiromantical Signatures; Added by way of Appendix to Chap. VIII. of this Book.*

I. **T**He foundation of Chiromancy depends upon the true appropriation of the several mounts, fingers, or places in the hand, to their proper Stars or Planets.

II. The Ancients have assigned the root of the middle finger to *Saturn*; of the fore-finger to *Jupiter*: the hollow of the hand to *Mars*: the root of the ring-finger to *Sol*: of the thumb to *Venus*: of the little finger to *Mercury*: and lastly, the brawn of the hand near the wrist to *Luna*.

III. That line which comes round the ball of the thumb



Iobi 37. 7.
Qui in manu omnium hominum signa posu;
ut vt cognoscerent opera eius singuli.
F. H. Van. Houe fecit.



Chap. 25. Of Chiromantical Signatures. 47

^thumb towards the root or mount of *Jupiter* is called *Linea Fovialis* or the life-line: that from the wrist to the root or mount of *Saturn*, *Linea Saturnialis*: but if it points to the root or mount of *Sol*, *Linea Solaris*, if to *Mercury*, *Linea Mercurialis*: that which goes from *Linea Fovialis* to the mount of *Luna*, *Linea Lunar*, or the natural line: the other great line above it is called *Linea Stellata*, or the line of fortune, because it limits the mounts of the Planets, and is impressed with various vertues in those places according to the nature of the Planet whose mount it runs under or sets a boundary unto: Lastly, the space between the natural line and the line of fortune is called *Mensa*, the Table.

IV. All other lines shall either proceed out of the sides of the former, or else from some proper mount.

V. Every line great or small, long or short, hath a certain beginning or root, from which it rises; and a certain end or point to which it tends.

VI. The distance between both ends, is the way of its passage; in which way, it either crosses some other line, or else is crossed: if it do neither, its signification is continual, and ought so much the more to be taken notice of.

VII. Every mount hath a proper signification, which it receives from the significations of its proper Planet, being abstractly considered: the same understand of all the principal lines aforesaid.

VIII. *Saturn* is the Author of Age, Inheritances, Melancholy, Malice, Sorrow, Misery, Calamities, Enemies, Imprisonments, Sicknes, Diseases, Perplexities, Cares, Poverty, Crosses, Death, and whatsoever evil can befall humane life: he signifies Fathers, Old Men, Labourers, Dyers, Smiths, and Jesuits.

IX. *Jupiter* is the Author of Health, Strength,

Moderation, Sobriety, Mercy, Riches, Substance, Goodness, Liberty, Religion, Honesty, Justice, Modesty, and all other things which may make a man happy: he signifies Churches, Church-men, Lawyers, Scholars, Cloathiers, and the like.

X. *Mars* is the Author of Strife, Contention, Pride, Presumption, Tyranny, Thefts, Murders, Victory, Conquest, Infortunacy, Boldness, and Dangers: he signifies Physicians, Chirurgions, Apothecaries, the Camp, all Military men and Preferments, Edge-tools, Butchers, Carpenters, Gunners, Bailiffs, and the like.

XI. *Sol* is the Author of Honour, Glory, Renown, Preferment, Life, Generosity, Magnanimity, Sovereignty, Dominion, Power, Treasures, Gold, Silver, and whatsoever may make the life of man splendid; he signifies Kings, Princes, Rulers, and all men in power, Minters, Goldsmiths, long Life and Wisdom.

XII. *Venus* is the Author of Joy, Pleasure, Mirth, Solace, Lust, Uncleanliness, and Idleness: she signifies Woman-kind, Sisters, Ladies, Whores, Curiosities, Lapidaries, Silkmen, Tailors, Mercers, Upholsters, Pictures, Picture-drawers, the Pox, and Diseases proceeding from uncleanness.

XIII. *Mercury* is the Author of Craft, Subtilty, Policy, Deceit, Perjury, Study, Hearing, and Merchandizing: he signifies Merchants, Clerks, Scholars, Secretaries, Ambassadors, Pages, Messengers, Poets, Orators, Stationers, Cheaters, Thieves, Petty-lawyers, Philosophers, Mathematicians, Astrologers.

XIV. *Luna* is the Author of popular Fame both Good and Evil, Joy and Sorrow, Mutability and Inconstancy, Affection and Disaffection, Moisture and every effect which may be said to be common: she signifies Waters, Ships, Seamen of all sorts, Queens, Ladies, a Governess, the Common people in general, Neigh-

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Neighbors, Mothers, Kindred, Fishmongers, Vintners, Tapsters, Midwives, Nurses and Travellers.

This being known, understand,

XV. *First*, That the lines take their signification from the mount of that Planet from whence they rise.

XVI. *Secondly*, That the place from whence any line rises shews the ground, cause, or original of the things signified by that line : the line or mount to which it points, shews the issue, to what the thing tends, and what may be the end of the matter signified.

XVII. *Thirdly*, That whether the line signifies good or evil, if it be cut or crossed by any other line, that line so cutting it, will at a certain time not only abate the good, but also take away the evil, if it so signified.

XVIII. *Fourthly*, That the nature and quality of that line thus destroying the signification of the former, is known by considering from what place it rises, and to what place it tends.

XIX. *Fifthly*, That a double judgement arises from every line, by accounting its rise, first from the one end; secondly from the other.

XX. *Sixthly*, That little lines rising out of the sides of any other line, both augment the things signified by that line; and also signify new matter arising by things signified by the line from whence they rise; and the place to which they point, shew to what they tend.

XXI. *Seventhly*, That the mounts or lines adorned with stars, or small lines, not crossed, or pointing to evil places, shew great good and happiness to the person, by things signified by the same mount or line : and on the contrary, vitiated with crosses, spots, or knots shew much evil and perplexity.

XXII. *Lastly*, The beginning of the lines, shew in the beginning or forepart of Life; the middle, in the middle part of Life; and the ends of them, the latter part,

part, or end of Life ; so that if any evil or good be signified by any line, you must hint the time according to the afore said reason.

'Tis true, here we ought to enquire into the denominated times when the things signified should come to pass ; but because that matter is something long and abstruse (being more fit to be handled in a particular tract, wherein all its curiosities may be examined) this our present work being a subject of another nature, and these things not essential to our purpose, but only added by way of appendix, we shall at this time forbear. Notwithstanding, although we have not here delineated every thing in particular, yet we have laid (as it were) the ground and foundation of the Art, out of which, as out of a fountain, the industrious Student may at his own leisure and pleasure, rear a stately fabrick.

The End of the first Book.

POLYGRAPHICES

LIBER SECUNDUS.

Of ENGRAVING, ETCHING, and LIMNING.

Shewing the Instruments belonging to the Work ; the Matter of the Work, the way and manner of performing the same ; together with all other Requisites and Ornaments.

C H A P. I.

Of Graving and the Instruments thereof.

I. **G** *Raving* is an Art which teacheth how to transfer any design upon Copper, Brass, or Wood, by help of sharp pointed and cutting Instruments.

II. The chief Instruments are four, 1. Gravers, 2. An Oyl stone, 3. A Cushion, 4. A Burnisher.

III. Gravers are of three sorts, round pointed, square pointed and Lozenge pointed. *The round is best to scratch withal : the square Graver is to make the largest strokes :*

Stroaks : the Lozenge is to make *stroaks* more fine and delicate ; but a Graver of a middle size betwixt the square and Lozenge pointed, will make the *stroaks* or hatches shew with more life and vigour, according as you manage it in working.

IV. The Oyl-stone is to whet the Gravers upon, which must be very smooth, not too soft, nor too hard, and without pin-holes.

The use is thus: Put a few drops of Oil Olive upon the stone, and laying that side of it, which you intend shall cut the Copper, flat upon the stone, whet it very flat and even ; and therefore be sure to carry your hand stedfast with an equal strength, placing the forefinger firmly, upon the opposite side of the Graver. Then turn the next side of your Graver, and whet that in like manner, that you may have a very sharpe edge for an inch or more. Lastly, turning uppermost that edge which you have so whetted, and setting the end of the Graver obliquely upon the stone whet it very very flat and sloping in form of a Lozenge (with an exact and even hand) making to the edge thereof a sharp point. It is impossible that the work should be with the neatness and curiosity desired, if the Graver be not, not only very good, but also exactly and carefully whetted.

V. The Cushion is a leather bag filled with fine sand, to lay the plate upon, on which you may turn it every way at ease.

You must turn your plate with your left hand, according as the *stroaks* which you grave do turn, which must be attained with diligent care and practice.

VI. The burnishing Iron is of use to rub out scratches and specks or other things which may fault your work in the plate ; as also if any *stroaks* be graved too deep or gross to make them appear less and fainter by rubbing them therewith.

VII. To

VII. To make your Gravers.

Provide some cross-bow steel, and cause it to be beaten out into small rods, and softened, then with a good file you may shape them at pleasure: when you have done, heat them red hot, and straight dip it into Soap, and by so doing it will be very hard: where note that in dipping them into the Soap, if you turn your hand never so little awry, the Graver will be crooked. If your Graver be too hard, take a red-hot Charcoal and lay the end of your Graver upon it till it begins to wax yellowish, and then dip it into tallow (some say water) and it will be tougher.

VIII. Have by you a piece of Box or hard wood, that after you have sharpened your Graver, by striking the point of it into the said Box or hard wood, you may take off all the roughness about the points, which was caused by whetting it upon the oyl-stone.

IX. Lastly, take a file and touch the edge of the Graver therewith; if the file cut it, it is too soft, and will do no good: but if it will not touch it, it is fit for your work.

If it should break on the point, it is a sign it is tempered too hard; which oftentimes after a little use by whetting will come into a good condition.

CHAP. II.

Of Polishing the Copper Plate.

I. **T**AKE a plate of Brass or Copper of what bigness you please, and of a reasonable thickness, taking heed that it be free from fire-flaws.

II. Beat it as smooth as you can with a hammer, and then rub it as smooth as you can, with a pumice-stone
void

void of Gravel (lest it scratch it, and so cause as much labour to get them out) and a little water.

III. Then drop a few drops of oyl Olive upon the plate, and burnish it with your burnishing Iron; and then rub it with Charcoal made of Beech wood quenched in Urine.

IV. Lastly, with a roul made of a piece of a black Felt, Castor, or Beaver, dipt in oyl Olive, rub it well for an hour, so shall your plate be exactly polished.

CHAP. III.

Of holding the Graver.

I. **I**T will be necessary to cut off that part of the knob of the handle of the Graver which is upon the same line with the edge of the Graver; thereby making that lower side next to the plate flat, that it may be no hindrance in graving.

For working upon a large plate, that part of the handle (if not cut away) will so rest upon the Copper, that it will hinder the smooth and even carriage of your hand in making your strokes, and will cause your Graver to run into your Copper deeper than it should do. This done,

II. Place the knob at the end of the handle of the graver in the hollow of your hand, and having extended your fore-finger towards the point of the Graver, laying it a top, or opposite to the edge which should cut the plate; place your thumb on the one side of the Graver, and your other fingers on the other side, so as that you may guide the Graver flat and parallel with the plate.

III. Be wary that your fingers interpose not between the

the plate and the Graver, for they will hinder you in carrying your Graver level with the plate, and cause your lines to be more deep, gross and rugged, than otherwise they would be.

C H A P. IV.

Of the way and manner of Engraving.

L HAVING a Cushion filled with sand about nine inches long and six broad, and three or four thick, and a plate well polished; lay the plate upon the Cushion, which place upon a firm Table.

I I. Holding the Graver (as aforesaid) according to Art, in making straight stroaks be sure to hold your plate firm upon the Cushion, moving your hand, leaning lightly where the stroak should be fine; and harder where you would have the stroak broader.

III. But in making circular or crooked stroaks, hold your hand and Graver stedfast, your arm and elbow resting upon the Table, and move the plate against the Graver; for otherwise it is imposible to make those crooked or winding stroaks with that neatness and command that you ought to do.

IV. Learn to carry your hand with such a slight, that you may end your stroak as finely as you begin it; and if you have occasion to make one part deeper or blacker than another, do it by degrees; and that you may do it the more exactly, observe that your stroaks be not too close, nor too wide.

For your more exact observation, practise by such prints which are more loosely shadowed, lest by imitating the more dark, you should not know where to begin or end.

V. After

V. After you have graved part of your work, it will be needful to scrape it with the sharp edge of a burnisher or other graver, carrying it along even with the plate, to take off the roughness of the strokes; but in doing it beware of making scratches.

VI. And that you may the better see that which is Engraven, with the piece of Felt or Castor (at the fourth Section of the second Chapter) dipt in oyl rub the places graven.

VII. Lastly, whatsoever appears to be amiss, you may rub out with the burnisher, and very exactly polish it with your piece of Felt or Castor and oyl; which done, to cleanse the plate you may boil it a little in Wine-vinegar, and rub it gently with a brush of small grass-wire or Hogs bristles.

C H A P. V.

Of the Imitation of Copies or Prints.

I. **H**AVING a piece of Bees wax tyed up in a fine holland rag, heat the plate over the fire, till it may be hot enough to melt the wax; then rub the plate with the wax tyed up in the rag, till you see it covered all over with wax, (which let be very thin :) if it be not even, heat it again by the fire, and wipe it over gently with a feather.

II. If you would copy a printed picture, to have it print off the same way; then clap the print which you would imitate with the printed side next to the plate; and having placed it very exactly, rub the backside of the print with a burnisher, or any thing that is hard, smooth and round, which will cause it
to

to stick to the wax upon the plate: then take off the print (beginning at one corner) gently and with care, lest you tear it (which may be caused also by putting too much wax upon the plate) and it will leave upon the wax the perfect proportion in every part.

Where note, if it be an old picture, before you place it upon the wax, it will be good to track it over in every limb with a black-lead pencil.

III. But if you would have it print the contrary way, take the dust of black-lead, and rub the backside of the print all over therewith, which backside put upon the waxed plate; and with your needle or drawing point, draw all the out-lines of the design or print, all which you will find upon the wax. This done,

I V. Take a long Graver either Lozenge or round (which is better) very sharp, and with the point thereof scratch over every particular limb in the out-stroak; which done, it will not be difficult to mark out all the shadows as you Engrave, having the proportion before you.

V. Lastly, for Copies of Letters, go over every letter with black lead, or write them with ungum'd Ink, and clap the paper over the waxed plate as before.

CHAP. VI.

Of Engraving in Wood.

I. **T**He figures that are to be carved or graven in Wood must first be drawn, traced, or pasted upon the wood; and afterwards all the other standing of the wood (except the figure) must be cut away
E with

with little narrow pointed knives made for that purpose.

This gravings in wood is far more tedious and difficult than that in Brass or Copper ; because you must cut twice or thrice to take out one stroak ; and having cut it, to be careful in picking it out, lest you should break any part of the work, which would deface it.

II. For the kind of the wood let it be hard and tough: the best for this purpose is Beech and Box: let it be plained inch thick ; which you may have cut into pieces according to the bigness of the figure you grave.

III. To draw the figures upon the wood.

Grind White lead very fine, and temper it with fair water ; dip a cloth therein, and rub over one side of the wood and let it dry thoroughly : This keepeth the Ink (if you draw therewith) that it run not about, nor sink; and if you draw with Pastils, it makes the stroaks appear more plain and bright.

IV. Having whited the wood as before (if it is a figure you would copy,) black or red the blankside of the print or copy, and with a little stick or swallow's quill ; trace or draw over the stroaks of the figure.

V. But if you paste the figure upon the wood, you must not then white it over (for then the figure will pill off) but only see the wood be well plained: then wipe over the printed side of the figure with Gum- Tragacanth dissolved in fair water, and clap it smooth upon the wood; which let dry thoroughly: then wet it a little all over, and fret off the paper gently, till you can see perfectly every stroak of the figure: dry it again, and fall to cutting or carving it.

C H A P. VII.

Of Etching, and the Materials thereof.

I. **E**Tching is an artificial Engraving of Brass or Copper-plates with *Aqua-fortis*.

II. The Instruments of Etching (besides the plate) are these nine. 1. *Hard Varnish*. 2. *Soft Varnish*. 3. *Prepared Oyl*. 4. *Aqua-fortis*. 5. *Needles*. 6. *Oyl-stone*. 7. *Brush-Pencil*. 8. *Burnisher*. 9. *The Frame and Trough*.

III. *To polish the plate.*

Although in Chap. 2. of this Book, we have sufficiently taught how to polish the plate, yet nevertheless we think it convenient to subjoin these following words. First, the plate being well planished or forged, choose the smoothest side to polish; then fix it upon a board a little declining, and rub it firmly and evenly all over with a piece of Grindstone, throwing water often on it, so long till there be no dints, flaws, or marks of the hammer: wash it clean, and with a piece of good Pumice-stone, rub it so long till there be no rough stroaks or marks of the Grindstone: wash it clean again, and rub it with a fine Hoan and water till the marks of the Pumice-stone are rubbed out: wash it again, and with a piece of Charcoal without knots (being heat red hot and quenched in water, the outside being pared off) rub the plate with water till all the small stroaks of the Hoan be vanished; lastly, if yet there remain any small stroaks or scratches, rub them out with the end of the burnishing Iron, so shall the plate be fitted for work.

E 2

IV. *To*

IV. *To make the hard Varnish for Etching.*

Take Greek or Burgundy-pitch, Colophonium or Rozin, of each five ounces, Nut-Oyl four ounces; melt the Pitch or Rozin in an earthen pot upon a gentle fire; then put in the Oyl, and let them boil for the space of half an hour: cool it a little upon a softer fire till it appear like a Glewy syrrup: cool it a little more, strain it, and being almost cold, put it into a glased-pot for use. Being thus made it will keep at least twenty years.

V. *To make the soft Varnish for Etching.*

Take Virgin-wax three ounces, Mastich in drops two ounces, Asphaltum one ounce: grind the Mastich and Asphaltum severally very fine: then in an earthen pot melt the wax and strew in the Mastich and Asphaltum, stirring all upon the fire till they be well dissolved and mixed, which will be in about half a quarter of an hour; then cooling it a little, pour it into a bason of fair water (all except the dregs) and with your hands wet (before it is cold) form it into rouls.

VI. *To make the prepared Oyl.*

Take Oyl Olive, make it hot in an earthen pot, and put into it a sufficient quantity of tried Sheeps suet (so much as being dropped upon a cold thing, the oyl may be a little hardened and firm) boil them together for an hour, till they be of a reddish colour, lest they should separate when you use them. This mixture is to make the fat more liquid, and not cool so fast, for the fat alone would be no sooner on the pencil, but it would grow cold; and be sure to put in more oyl in Winter than in Summer.

VII. *To make the Aqua-fortis.*

Take distilled White-wine Vinegar three pints; Sal-Armoniack, Bay-salt of each six ounces; Verdegriese
four

four ounces. Put all together into a large well glazed earthen pot (that they may not boil over) cover the pot close, and put it on a quick fire, and let it speedily boil two or three great walms and no more; when it is ready to boil uncover the pot, and stir it sometimes with a stick, taking heed that it boil not over: having boiled, take it from the fire, and let it cool being close covered, and when it is cold, put it into a Glass bottle with a Glass stopple: If it be too strong in Etching weaken it with a glass or two of the same Vinegar you made it of. There is another sort of *Aqua-fortis*, which is called Common, which is exhibited in *Synopsis Medicina*, lib. 3. cap. 7. sect. 4. pag. 856. But because that Book may not be in every mans hand, we will here insert it; it is thus: Take dried Vitriol two pound, Salt-peter, one pound, mix them and distil by a Retort, in open fire by degrees.

VIII. *To make the Etching Needles.*

Choose Needles of several sizes such as will break without bending, and of a fine grain; then take good round sticks of firm wood (not apt to split) about six inches long, and as thick as a large Goose-quill, at the ends of which fix your Needles so that they may stand out of the sticks about a quarter of an inch or something more.

IX. *To whet the points of the Needles with the Oyl-stone.*

If you would have them whetted round, you must whet their points short upon the Oyl-stone (not as sowing Needles are) turning them round whilst you whet them, as Turners do. If you whet them sloping, first make them blunt upon the Oyl-stone, then holding them firm and steady, whet them sloping upon one side only, till they come to a short and roundish oval.

X. The brush pencil is to cleanse the work, wipe off dust, and to strike the colours even over the ground or varnish, when laid upon the plate.

XI. The burnisher is a well hardened piece of steel somewhat roundish at the end. Its uses are what we have spoken at the sixth Section of the first Chapter, and the third Section of the second Chapter.

XII. *To make the Frame and Trough.*

The Frame is an entire board, about whose top and sides is fastned a ledge two inches broad, to keep the *Aqua-fortis* from running off from the sides when you pour it on: the lower end of this board must be placed in the Trough, leaning sloping against a wall or some other thing, wherein you must fix several pegs of wood to rest the plate upon. The Trough is made of a firm piece of Elm or Oke set upon four legs, whose hollow is four inches wide; and so long as may best fit your use: the hollow must be something deeper in the middle, that the water running thither way fall through a hole (there made for that purpose) into an earthen pan well Leaded. *The inside of this board and trough must be covered over with a thick oyl colour, to hinder the Aqua-fortis from eating or rotting the board.*

C H A P. VIII.

*The way and manner of using the hard
Varnish.*

I. **H**AVING well heat the polished plate over a Chafing dish of coals, take some of the first varnish with a little stick, and put a drop of it on the top of your finger, with which lightly touch the plate at equal distances, laying on the varnish equally, and heating the plate again as it grows cold, keeping it carefully from dust or filth; then with the ball of your thumb tap it upon the plate; still wiping your hand over all, to make it more smooth and equal.

And here beware that neither the varnish be too thick upon the plate, nor your hand sweaty.

II. Then take a great lighted candle burning clear, with a short snuff, (placing the corner of the plate against a wall) hold the varnished side downward over the candle, as close as you can, so it touch not the varnish, guiding the flame all over, till it is all perfectly black, which you must keep from dust or filth till it is dry.

III. Over a fire of Charcoals hang the varnished plate to dry with the varnish upwards, which will smoak; when the smoak abates, take away the plate, and with a pointed stick scratch near the side thereof, and if the varnish easily comes off, hang it over the fire again a little, so long till the varnish will not too easily come off; then take it from the fire and let it cool.

If the varnish should be too hard, cast cold water on the back-side of the plate to cool it, that the heat may not make it too hard and brittle. This done,

IV. Place it upon a low desk, or some suchlike thing, and cover that part which you do not work on, with a sheet of fine white paper, and over that a sheet of brown paper, on which may rest your hand, to keep it from the varnish.

V. If you use a ruler, lay some part of it upon the paper; that it may not rub off the varnish; and have an especial care, that no dust or filth get in between the paper and the varnish, for that will hurt it.

CHAP. IX.

The way and manner of Etching.

I. **I**N making lines or hatches, some bigger, some lesser, straight or crooked, you must use several sorts of Needles, bigger or lesser as the work requires.

II. The great lines are made by leaning hard on the Needle; its point being short and thick, (but a round point will not cut the varnish clear:) or by making divers lines, or hatches, one very close to another, and then by passing over them again with a thicker Needle; or by making them with an indifferent large needle, and letting the *Aqua-fortis* lie the longer thereon.

The best Needles for this work are such as are whet sloping with an oval, because their sides will cut that which the round ones will not.

III. If your lines or hatches ought to be of an equal thickness from end to end, lean on the needle with an
equal

equal force; leaning lightly where you would have the lines or strokes fine or small; and more heavy where you would have the lines appear deep or large; thereby the needle may have some Impression in the Copper.

I V. If your lines or hatches be too small, pass over them again with a short round point, of such a bigness as you would have the line of, leaning strongly where you would have the line deep.

V. The manner of holding the needle with oval points (which are most proper to make large and deep strokes) is much like that of a pen, only the flat side whetted is usually held towards the thumb: but they may be used with the face of the oval turned toward the middle finger.

VI. If you would end with a fine stroke, you ought to do that with a very fine needle.

VII. In using the oval points, hold them as upright and straight in your hand as you can, striking your strokes firmly and freely, for that will add much to their beauty and clearness.

VIII. In Landships, in places farthest from the sight, as also nearest the light, use a very slender point, leaning so lightly with your hand as to make a small faint stroke.

IX. In working be careful to brush off all the dust which you work off with the needles.

C H A P. X.

Of using the Aqua-fortis.

I. IF there be any stroaks which you would not have the *Aqua-fortis* eat into; or any places where the varnish is rubbed off, melt some prepared Oyl, and with a pencil, cover those places pretty thick.

II. Then take a brush, pencil, or rag, and dip it in the prepared oyl, and rub the back-side of the plate all over, that the *Aqua-fortis* may not hurt it, if by chance any should fall thereon.

III. Before you put the *Aqua-fortis* to the plate, gently warm or dry the plate by a fire to dry up the humidity, which it might contract by reason of the Air; and to prevent the breaking up the varnish upon the first pouring the *Aqua-fortis* thereon.

IV. Place the plate by the 12th. Section of the 7th. Chapter of this Book, and with the *Aqua-fortis* in an earthen pot pour upon the plate, beginning at the top, so moving your hand that it may run all over the plate, which do for eight or ten times: then turn it cornerwise, and pour the *Aqua-fortis* on it that way ten or twelve times; and then turn it again cornerwise the other way, pouring on the *Aqua-fortis* eight or ten times as before; doing thus several times for the space of half a quarter of an hour or more, according to the strength of the water, and nature of the Copper.

For there must be less time allowed to hard and brittle Copper for pouring on the Aqua-fortis, but more to the soft.

V. But

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V. But you must have special regard to cast on the *Aqua-fortis* as occasion shall require, and work is ; casting it on at several times, and on several places ; where you would have it very deep, often ; where less deep, fewer times : where light, less yet ; where lighter, lesser yet : and where so light as it can scarcely be seen, once or twice : wash it with water, and cover it where you would have it lighter.

VI. Having thus covered your plates as occasion requires ; for the second time, place the plate on the frame as aforesaid, and pour on it your *Aqua-fortis* for a full half hour.

VII. Then wash it with water and dry it, covering the places which require lightness or faintness (that they may be proportionable to the design) then pour on the *Aqua-fortis* for the last time more or less according to the nature of your work, and the deepness that it requires.

VIII. You may rub off the varnish or ground, as occasion in your work requires with a Charcoal, to see whether the water hath eaten deep enough ; by which you may judge of the space of time, that you are after to imploy in pouring on the *Aqua-fortis*, in the works you will have to do, which if the shadows require much depth, or ought to be very black, the water ought to be poured on (at the least time) for an hour or better ; yet know *no certain rule of time can be limited for this.*

C H A P.

C H A P. XL

Of Finishing the work.

I. **A**LL the former operations being done, wash the plate with fair water ; and put it wet upon the fire, till the mixture be well melted, and then wipe it very clean on both sides with a linnen cloth, till you have cleansed it of all the mixture.

II. Take Charcoal of Willow, take off the rind of it, and putting fair water on the plate, rub it with the Charcoal, as if you were to polish it, and it will take off the varnish.

Where note, that the Coal must be free from all knots and roughness, and that no sand or filth fall upon the plate.

III. Take ordinary *Aqua-fortis*, to which add two third parts of water, and with some linnen rags dipped therein rub the plate all over, so will you take away its discolouring, and recover its former beauty.

IV. Then take dry linnen rags and wipe the plate so as to take off all the aforesaid water, and then holding it a little to the fire, put upon it a little Oyl Olive, and with a piece of an old Beaver rolled up rub the plate well all over, and lastly, wipe it well with a dry cloath.

V. Then if any places need touching with the Graver, as sometimes it happens, especially where it is to be very deep or black, perfect them with care ; which done, the plate is ready for the Rolling-Press.

C H A P. XII.

The way of using the soft Varnish.

I. **T**HE plate being prepared by cleansing it with a Charcoal and clean water, wash it well and dry it, then with fine white Chalk scraped and a fine rag, rub it well over, not touching it with your fingers.

II. Lay down your plate over a Chafing-dish of small-coal, yet so as the fire may have air; then take the ground or soft varnish (it being tied up in a fine rag) and rub it up and down the Copper, so as it may sufficiently cover it, (not too thin nor too thick;) then take a feather and smooth it as well as possibly you can all one way, and then cross it, till it lie very well.

But you must take heed that the plate be not too hot, for if it lie till the ground smoak, the moisture will be dried up, and that will spoil the work, and make the ground break or fly up.

III. Then grind some White-lead with Gum-water, so that it may be of a convenient thickness to spread on the Copper; and with a large pencil, or small brush, strike the plate cross over, twice or thrice till it is smooth; and then with a larger brush (made of Squirrels tails) gently smooth the white, and then let it lie till it is dry.

IV. Or you may black the varnish with a Candle, as we taught at the Second Section of the Eighth Chapter, and then warm it over the fire, till the varnish begins to melt.

C H A P. XIII.

The way of Etching upon the soft Varnish.

I. **T**HE way of Etching is the same with that in the hard varnish ; only you must be careful not to hurt your varnish, which you may do by placing on the sides of your plate two little boards, and laying cross over them another thin one, so as that it may not touch the plate, on which you must rest your hand whilst you work.

II. Then place the plate on a Desk (if you so please) for by that means the superfluous matter will fall away of it self.

III. But if you have any design to transfer upon the plate from any Copy or Print, scrape on the backside thereof some red Chalk all over ; then go over that, by scraping some soft Charcoal, till it mingle with the Chalk ; and with a large stiff pencil rub it all over till it be fine and even, and so lay down the design upon the plate : with a blunt Needle draw over the out strokes : *and as you work, you need not scratch hard into the Copper, only so as you may see the Needle go through the Varnish to the Copper.*

IV. Always be sure when you leave the work, to wrap the plate up in Paper, to keep it from hurt, and corrupting in the air, which may dry the varnish : and in Winter time wrap the plate up in a piece of wollen, as well as paper, for if the frost get to it, it will cause the varnish to rise from the Copper in the eating.

An inconveniency also will accrew, by letting the Varnish lie too long upon the Plate before the work is finished ;
for

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for three or four months will consume the moisture and so spoil all.

V. The marking of the design upon the soft varnish, is best done with Black-lead or Chalk, if the ground is white; but with red Chalk, if the ground is black.

VI. Having Graved what you intend upon the varnish, take some fair water, a little warm, and cast it upon the Plate; and then with a soft clean Sponge, rub upon the White-lead to moisten it all over; and then wash the plate to take away the whiting, and dry it.

VII. Or lastly, with *Aqua-fortis* mixed with fair water, wash it all over, and by this means you may take away the whiting, which then wash with common water and dry it; and thus have you the plate prepared for the *Aqua-fortis*.

CHAP. XIV.

Of using the Aqua-fortis, and finishing the work.

I. **P**Ut soft wax (red or green) round the brims of the plate, and let it be raised above the varnish about half a Barley Corns length; so that placing the plate level, the water being poured upon the plate may by this means be retained. This done,

II. Take common *Aqua-fortis* six ounces, common water two ounces; mix them, and pour it gently upon the plate, so that it may cover it fully all over; so will the stronger hatchings be full of bubbles, while the

the fainter will appear clear for a while, not making any sudden operations to the view.

III. When you perceive the water to operate a small time, pour it off into a glazed earthen dish, and throw fair water upon the plate, to wash away the *Aqua-fortis*, then dry the plate: and where you would have the Cut to be faint, tender or sweet, cover it with the prepared Oyl, and then cover the plate again with *Aqua-fortis* as before, leaving it on for eight or ten minutes, or longer: then put off the *Aqua-fortis* as before washing and drying the plate, and covering with the prepared Oyl other places which you would not have so deep as the rest: Lastly, put on the *Aqua-fortis* again, for the space of half an hour (more or less) and then pour it off, washing the plate with fair water as before.

As you would have your lines or stroaks to be deeper and deeper, so cover the sweeter or fainter parts by degrees with the prepared Oyl, that the Aqua-fortis may lie the longer on the deep stroaks. Then,

I V. Take off the border of wax, and heat the plate, so that the Oyl and varnish may thoroughly melt; which wipe away well with a linnen cloth: then rub the plate over with Oyl Olive and a piece of an old Beaver roll'd up, which done, touch it with the Graver where need is.

V. But if any thing be (at last) forgotten; then rub the plate aforesaid with crums of bread, so well that no filth or oyl remain upon the plate.

VI. Then heat the plate upon a Charcoal fire, and spread the soft varnish with a feather upon it (as before) so that the hatchings may be filled with varnish; black it and then touch it over again, or add what you intend.

VII. Let

VII. Let your hatchings be made by means of the Needles, according as the manner of the work shall require, being careful before you put on the *Aqua-fortis*, to cover the first graving on the plate with the prepared Oyl; (lest the varnish should not have covered all over:) then cause the *Aqua-fortis* to eat into the work; and lastly cleanse the plate as before.

C H A P. XV.

Of Limning, and the Materials thereof.

I. **L**imning is an Art whereby in water Colours; we strive to resemble Nature in every thing to the life.

II. The Instruments and Materials thereof are chiefly these. 1. *Gum.* 2. *Colours.* 3. *Liquid Gold and Silver.* 4. *The Grind-stone and Muller.* 5. *Pencils.* 6. *Tables to Limn in.* 7. *Little glass or China-dishes.*

III. The *Gums* are chiefly these four, Gum-Arabick, Gum-Lake, Gum-Hedera, Gum-Armoniack.

IV. The principal *Colours* are these seven, *White, Black, Red, Green, Yellow, Blew, Brown*: out of which are made mixt or compound Colours.

V. The *Liquid Gold and Silver* is either natural or artificial.

The natural is that which is produced of the Metals themselves: the artificial is that which is formed of other colours.

VI. The *Grinding-stone, Muller, Pencils, Tables, and Shells, or little China-dishes* are only the necessary instruments and at tendants, which belong to the practice of Limning.

CHAP. XVI.

Of the Gums and their Use.

I. **T**He chief of all is Gum-Arabick, that which is white, clear and brittle; the Gum-water of it is made thus:

Take Gum-Arabick, bruise it and tie it up in a fine cleane linnen cloath, and put it into a convenient quantity of pure Spring-water, in a glass or earthen vessel; letting the Gum remain there till it is dissolved; which done, if the water is not stiff enough, put more Gum into the cloath; but if too stiff, add more water: of which Gum-water have two sorts by you, the one strong, the other weak; of which you may make a third at pleasure.

But if you be where Gum-Arabick is not to be got, you may instead of that use the preparation of Sheeps-leather or parchment following.

Take of the shreds of white Sheep-skins (which are to be had plentifully at Glovers) or else of parchments, one pound; Conduit or running water two quarts, boil it to a thin gelly, then strain it whilst hot through a fine strainer, and so use it.

II. Gum-lake, it is made of whites of Eggs beaten and strained a pint, Honey, Gum-Hedera, of each two Drachms, strong wort four spoonfuls, mix them, and strain them with a piece of sponge till they run like a clear oyl, which keep in a cleane vessel till it grows hard.

This Gum will dissolve in water like Gum-Arabick, of which Gum-water is made in like manner; it is a good ordinary varnish for Pictures.

III. Gum-Hedera, or Gum of Ivy; it is gotten out
of

of Ivy, by cutting with an Axe a great branch thereof, climbing upon an Oak-tree; and bruising the ends of it with the head of the Axe; at a Months end, or thereabouts, you may take from it a very clear, and pure fine Gum, like oyl,

It is good to put into Gold-size and other Colours, for these three reasons : 1. It abates the ill sent of the size : 2. It will prevent bubbles in Gold-size and other Colours : 3. Lastly, it takes away the fat and clamminess of Colours : besides which it is of use in making Pomanders.

I V. Gum-Armoniacum, It is a Forrein Gum, and ought to be brought strained. Grind it very fine with juice of Garlick and a little Gum-Arabick-water, so that it may not be too thick, but that you may write with it what you will.

When you use it, draw what you will with it, and let it dry, and when you gild upon it, cut your Gold or Silver to the fashion which you drew with the size or gum, then breath upon the size, and lay the Gold upon it gently taken up, which press down hard with a piece of wool; and then let it well dry; being dried, with a fine linnen cloath strike off the loose Gold; so will what was drawn be fairly gilded if it was as fine as a hair: it is called Gold-Armoniack;

CHAP. XVII.

Of the seven Colours in General.

I. **T**HE chief Whites are these, Spodium, Ceruse, White-lead, Spanish-white, Egg-shells burnt. This Colour is called in Greek λευκός; of λεῖσσω, video,

to see, because λευκότης ἵστ' διακερικτὸν ὄψιν, whiteness (as Aristotle said) is the object of sight, in Latin *Albus*, from whence the *Alps* had their name, by reason of their continual whiteness with Snow. The *Spanish-white* is thus made. Take fine Chalk three ounces, Alom one ounce, grind them together with fair water till it be like pap; roul it up into balls, which dry leisurely: then put them into the fire till they are red-hot; take them out, and let them cool: it is the best white of all, to garnish with, being ground with weak Gum-water.

I I. The chief *Blacks* are these, Harts-horn burnt, Ivory burnt, Cherry-stones burnt, Lamp-black, Charcoal.

Black, in Latin *Niger* is so called from the Greek word νεκρός, which signifies dead, because putrified and dead things are generally of that colour. Lamp-black is the smoak of a Link, Torch, or Lamp gathered together.

III. The chief *Reds* are these, Vermilion, Red-lead, Indian-lake, Red-oker. It is called in Latin *Ruber* παρὰ τὴν ποὺν ἀ corticibus vel granis mali punici; from the Rinds or Seeds of Pomegranates, as Scaliger saith.

I V. The chief *Greens* are these, Green Bice, Verdigrise, Verditure, Sapgreen. This colour is called in Latin *Viridis* from *Vires*: in Greek χλωρὸν ἢ χλοῦν, Grass or Green Herb, which is of this Colour.

V. The chief *Yellows* are these, Orpiment, Masticot, Saffron, Pink-yellow, Oker-déluce. This colour is called in Latin *Flavus*, *Luteus*, in Greek ξανθός, which is Homer's Epithete for Menelaus, where he calls him ξανθὸς Μενελάου.

V I. The chief *Blews* are Ultramarine, Indico, Smalt, Blew Bice. This colour is called in Latin *Ceruleus*, in Greek κυάνεον ἢ κύανον, the name of a stone which yields Ultramarine.

VII. The

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VII. The chief *Browns* are Umber, Spanish-brown, Colens Earth. It is called in Latin *Fuscus*, *quasi* φῶς *ἐκιάται*, from darkning the Light, in Greek φαιός.

CHAP. XVIII.

Of Colours in Particular.

I. *Ceruse*, Grind it with glair of Eggs, and it will make a most perfect white.

II. *White-lead*, Grind it with a weak water of Gum-lake, and let it stand three or four days, after which if you mix with it Roset and Vermilion, it makes a fair Carnation.

III. *Spanish-white*, It is the best white of all, to garnish with, ground with weak Gum-water.

IV. *Lamp-black*, ground with Gum-water, it makes a good black.

V. *Vermilion*, Grind it with the glair of an Egg, and in the grinding put a little clarified honey, to make its colour bright and perfect.

VI. *Sinaper-lake*, it makes a deep and beautiful red, or rather purple, almost like unto a Red-rose. Grind it with Gum-lake and Turnsole-water: if you will have it light, add a little Ceruse, and it will make it a bright Crimson; if to Diaper, add only Turnsole water.

VII. *Red-lead*, Grind it with some Safforn, and stiff Gum-lake; for the Safforn makes it orient, and of a Marigold colour.

VIII. *Turnsole*, Lay it in a Sawcer of Vinegar, and set it over a Chafing-dish of coals; let it boil, then take it off, and wring it into a shell, adding a little

Gum-Arabick, let it stand till it is dissolved: It is good to shadow Carnation, and all Yellows.

I X. *Roset*, Grind it with Brazil-water, and it will make a deep purple: put Ceruse to it, and it will be lighter; grind it with Litmose, and it will make a fair Violet.

X. *Spanish-brown*, Grind it with Brazil-water: mingle it with Ceruse and it makes a horse-flesh Colour.

XI. *Bole-Armoniack*, It is a faint colour; its chief use is, in making size for burnish'd gold.

XII. *Green bice*, Order it as you do Blew bice; when it is moist, and not through dry, you may Diaper upon it with the water of deep green,

XIII. *Verdegriese*, Grind it with juyce of Rue, and a little weak Gum-water, and you will have a most pure green: if you will Diaper with it, grind it with Lye of Rue (or else the decoction thereof) and there will be a hoary green: Diaper upon Verdegriese-green with Sap-green: also Verdegriese ground with white Tartar, and then tempered with gum-water, gives a most perfect green.

XIV. *Viridure*, grind it with a weak Gum-Arabick water: it is the faintest green that is, but is good to lay upon black, in any kind of Drapery.

XV. *Sap-green*; lay it in sharp Vinegar all night; put it into a little Alom to raise its colour, and you will have a good green to Diaper upon other greens.

XVI. *Orpiment*, *Arsenicum* or *Auripigmentum*, grind it with a stiff water of Gum-lake, because it is the best colour of it self, it will lie upon no green, for all greens, White and Red-lead, and Ceruse stain it: wherefore you must deepen your colours so that the Orpiment may be highest, and so it may agree with all Colours.

XVII. *Masti-*

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XVII. *Masticot*, grind it with a small quantity of Saffron in gum-water, and never make it lighter than it is : it will endure to lie upon all colours and metals.

XVIII. *Saffron*, Steep it in glair : it may be ground with Vermilion.

XIX. *Pink-yellow*, if you would have it sad coloured, grind it with Saffron; if light, with Ceruse : mix it with weak gum-water, and so use it.

XX. *Oker de Luce*, grind it with pure Brazil water : it makes a passing hair colour ; and is a natural shadow for gold.

XXI. *Umber*, It is a more sad colour. Grind it with gum-water, or gum-lake ; and lighten it (if you please) with a little Ceruse and a blade of Saffron.

XXII. *Ultramarine*, If you would have it deep, grind it with Litmose-water ; but if light, with fine Ceruse, and a weak Gum-Arabick water.

XXIII. *Indico*, grind it with water of Gum-Arabick, as Ultramarine.

XXIV. *Blew bice*, grind it with clean water, as small as you can, then put it into a shell, and wash it thus : put as much water to it as will fill up the vessel or shell, and stir it well, let it stand an hour, and the filth and dirty water cast away ; then put in more clean water, do thus four or five times ; and at last put in Gum-Arabick water somewhat weak, that the Bice may fall to the bottom ; pour off the gum-water, and put more to it, wash it again, dry it, and mix it with weak gum-water (if you would have it rise of the same colour) but with a stiff water of Gum-lake, if you would have a most perfect blew ; if a light blew, grind it with a little Ceruse ; but if a most deep blew, add water of Litmose.

XXV. *Smalt*, grind it with a little fine *Roset*, and it will make a deep Violet: and by putting in a quantity of *Ceruse*, it will make a light Violet.

XXVI. *Litmoſe-blew*, grind it with *Ceruse*: with too much *Litmoſe* it makes a deep blew; with too much *Ceruse*, a light blew: grind it with the weak water of *Gum Arabick*.

Take fine *Litmoſe*, cut it in pieces, lay it in weak water of *Gum-lake* for twenty four hours, and you shall have a water of a most perfect *Azure*; with which water you may *Diaper* and *Damask* upon all other blews, to make them shew more fair and beautiful.

XXVII. *Orchal*, grind it with unſlak'd *Lime* and *Urine*, it makes a pure Violet: by putting to more or less *Lime*, you may make the Violet light or deep as you please.

CHAP. XIX.

Of mixt and compound Colours.

I. **M**urry, It is a wonderful beautiful colour, composed of purple and white: it is made thus. Take *Sinaper-lake* two ounces; *White-lead* one ounce, grind them together. See the 24. Section.

II. *A glass gray*, mingle *Ceruse* with a little *Azure*.

III. *A bay colour*, mingle *Vermilion* with a little *Spanish brown* and black.

IV. *A deep purple*, It is made of *Indico*, *Spanish-brown* and white.

It is called in *Latin* *Purpureus*, in *Greek* πορφυρεο from *porpura*, a kind of shell-fish that yields a liquor of that colour.

V. *An*

V. *An Ash-colour, or Gray*, It is made by mixing White and Lamp-black; or white with Sinaper; Indico and black make an Ash-colour-

It is called in Latin Cæsius, and color Cinereus; in Greek Γλαυκός and τεφράδης.

VI. *Light Green*, It is made of Pink and Smalt; with white to make it lighter if need require.

VII. *Saffron colour*, It is made of Saffron alone by infusion.

VIII. *Flame colour*, It is made of Vermilion and Orpiment, mixed deep or light at pleasure: or thus, Take Red-lead and mix it with Masticot, which heighten with white.

IX. *A Violet colour*, Indico, White and Sinaper-lake make a good Violet. So also Ceruse and Litmose, of each equal parts.

X. *Lead colour*, It is made of White mixed with Indico.

XI. *Scarlet colour*, It is made of Red-lead, Lake, Vermilion: yet Vermilion in this case is not very useful.

XII. *To make Vermilion.*

Take Brimstone in powder one ounce, mix it with Quicksilver a pound, put it into a Crucible well luted, and upon a Charcoal-fire heat it till it is red-hot; then take it off and let it cool.

XIII. *To make a bright Crimson.*

Mix tincture of Brazil with a little Ceruse ground with fair water.

XIV. *To make a sad Crimson.*

Mix the aforesaid light Crimson with a little Indico ground with fair water.

XV. *To make a pure Lake.*

Take Urine twenty pound, boil it in a Kettle and scum it with an Iron scummer till it comes to sixteen pound.

pound; to which add Gum-lake one pound, Alom five ounces; boil all till it is well coloured, which you may try by dipping therein a piece of linnen cloth; then add sweet Alom in powder a sufficient quantity, strain it and let it stand; strain it again through a dry cloth till the liquor be clear: that which remains in the cloth or bag is the pure Lake.

XVI. To make a Crimson Lake.

Its usually made of the flocks shorn off from Crimson cloth by a Lye made of Salt-peter, which extracts the colour; which precipitate, edulcorate, and dry in the Sun or a Stove.

XVII. A pure Green.

Take white Tartar and Verdegriese, temper them with strong White-wine Vinegar, in which a little Gum-Arabick hath been dissolved.

XVIII. A pure Violet.

Take a little Indico and tincture of Brazil, grind them with a little Ceruse.

XIX. A pure Purple colour.

Take fine brimstone an ounce and an half, Quick-silver, Sal- Armoniack, Jupiter, of each one ounce; beat the Brimstone and Salt into powder, and make an Amalgamy with the Quicksilver and Tin, mix all together, which put into a great glass goard; make under it an ordinary fire, and keep it in a constant heat for the space of six hours.

XX. To make a Yellow colour.

Take the Yellow chives in white Lillies, steep them in gum-water, and it will make a perfect Yellow; the same from Saffron and Tartar tempered with gum-water.

XXI. To make a Red colour.

Take the roots of the lesser Bugloss, and beat them, and strain out the juyce, and mix it with Alom-water.

XXII. To

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XXII. To make excellent good Greens.

The Liver of a Lamprey makes an excellent and durable grasse green : and yellow laid upon blew will change into green : so likewise the juyce of a blew Flower-de-luce, mixed with gum-water, will be a perfect and durable green or blew, according as it is used.

XXIII. To make a Purple colour.

Take the juyce of Bilberries and mix it with Alom and Galls, and so paint with it.

XXIV. To make a good Murry.

Temper Rosset with a little Rose-water, in which a little gum hath been dissolved, and it will be good, but not exceeding that at the first Section of this Chapter.

XXV. To make Azure or Blew.

Mix the Azure with glew-water, and not with gum-water.

XXVI. To make a Yellow Green, or Purple.

Buckthorn-berries gathered green and steeped in Alom-water yield a good yellow : but being through ripe and black (by the eighteenth Section of the twenty seventh Chapter of the third Book) they yield a good green ; and lastly, being gathered when they are ready to drop off, which is about the middle or end of *November*, their juyce mixt with Alom water yields a good Purple colour.

C H A P. XX.

Of Colours for Drapery.

I. **F**or *Yellow Garments*. Take Masticot deepened with brown-Oker and Red-Lead.

II. *For Scarlet*. Take Vermilion deepened with Snapper-lake, and heightened with touches of Masticot.

III. *For Crimson*. Lay on Lake very thin and deepen with the same.

IV. *For Purple*. Grind Lake and Smalt together: or take Blew-bice, and mix it with Red and White-Lead.

V. *For an Orient Violet*. Grind Litmose, Blew-Smalt, and Ceruse; but in mixture let the blew have the upper hand.

VI. *For Blew*. Take Azure deepened with Indy-Blew or Lake heightened with white.

VII. *For black Velvet*. Lay the garment first over with Ivory black, then heighten it with Cherrystone black, and a little white.

VIII. *For black Sattin*. Take Cherrystone black; then white deepened with Cherrystone black; and then lastly, Ivory black.

IX. *For a pure Green*. Take Verdegriese, bruise it, and steep it in Muscadine for twelve hours, then strain it into a shell, to which add a little Sap-green: (but put no gum thereto.)

X. *For a Carnation*. Grind Ceruse, well washed, with Red-lead; or Ceruse and Vermilion.

XI. *For Cloth of Gold*. Take brown Oker, and

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quid Gold water, and heighten upon the same with small stroaks of Gold.

XII. *For white Sattin.* Take first fine Ceruse, which deepen with Cherrystone-black, then heighten again with Ceruse, and fine touches where the light falleth.

XIII. *For a Russet Sattin.* Take Indy-blew and Lake, first thin and then deepned with Indy again.

XIV. *For a hair Colour.* It is made out of Masticot, Umber, Yellow Oker, Ceruse, Oker-de-luce, and Sea-coal.

XV. *For a Popenjay Green.* Take a perfect green mingled with Masticot.

XVI. *For Changeable Silk.* Take water of Masticot and Red-lead; which deepen with Sap-green.

XVII. *For a light Blew.* Take Blew bice, heightened with Ceruse or Spodium.

XVIII. *For to shadow Russet.* Take Cherrystone-black and white; lay a light Russet, then shadow it with white.

XIX. *For a Skie Colour.* Take Blew-bice and Venice Ceruse: but if you would have it dark, take some blew and white.

XX. *For a Straw Colour.* Take Masticot, then white heightened with Masticot, and deepned with Pink. Or thus. Take Red-lead deepned with Lake.

XXI. *For Yellowish.* Thin Pink deepned with Pink and green: Orpiment burned makes a Marigold colour.

XXII. *For a Peach Colour.* Take Brazil water, Log water and Ceruse.

XXIII. *For a light Purple.* Mingle Ceruse with Logwood water: or take Turnsole mingled with a little Lake, Smalt and Bice.

XXIV. *For*

XXIV. *For a Walnut colour.* Red-lead thinly laid, and shadowed with Spanish brown.

XXV. *For a Fire colour.* Take Masticot, and deepen it with Masticot for the flame.

XXVI. *For a Tree.* Take Umber and white, wrought with Umber, deepned with black.

XXVII. *For the Leaves.* Take Sap-green and green Bice, heighten it with Verditure and white.

XXVIII. *For Water.* Blew and white, deepned with blew, and heightned with white.

XXIX. *For Banks.* Thin Umber, deepned with Umber and black.

XXX. *For Feathers.* Take Lake frizled with Red-lead.

CHAP. XXI.

Of Liquid Gold and Silver.

I. *Liquid Gold and Silver.*

L Take five or six leaves of Gold or Silver, which grind (with a stiff Gum-lake water, and a good quantity of Salt) as small as you can; then put it into a vial or glazed vessel; add so much fair water as may dissolve the stiff gum-water; then let it stand four hours, that the Gold may settle: decant the water, and put in more, till the Gold is clean washed: to the Gold put more fair water, a little Sal-Armoniack and common Salt, digesting it close for four days: then put all into a piece of thin Glovers leather (whose grain is peeled off) and hang it up, so will the Sal-Armoniack fret away, and the Gold remain behind, which keep.

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Or thus. Grind fine leaf Gold with strong or thick gum-water very fine; and as you grind add more thick gum-water being very fine, wash it in a great shell, as you do Bice: then temper it with a little quantity of Mercury sublimate, and a little dissolved gum to bind it in the shell; shake it, and spread the Gold about the sides thereof, that it may be all of one colour and fineness, which use with fair water, as you do other colours. The same observe in liquid Silver; with this observation, That if your Silver, by length of time, or humidity of the air become rusty; then cover the place with juyce of Garlick before you lay on the Silver, which will preserve it.

When you use it, temper it with glair of Eggs, and so use it with pen or pencil. Glair of Eggs is thus made. Take the whites and beat them with a spoon, till that rise all in a foam; then let them stand all night, and by morning they will be turned into clear water, which is good glair.

II. *Argentum Musicum.*

Take one ounce of Tin, melt it, and put thereto of Tartar and Quicksilver of each one ounce, stir them well together untill they be cold, then beat it in a mortar and grind it on a stone; mix it with gum water, write therewith, and afterwards polish it.

III. *Burnished Gold or Silver.*

Take Gum lake and dissolve it into a stiff water; then grind a blade or two of Saffron therewith, and you shall have a fair Gold: when you have set it, being thoroughly dry, burnish it with a dogs tooth. Or thus having writ with your pen or pencil what you please, cut the leaf Gold or Silver into pieces, according to the draught, which take up with a feather and lay it upon the drawing, which press down with a piece of wool; and being dry, burnish it.

IV. *Gold*

IV. *Gold Armoniack.*

This is nothing but that which we have taught at the fourth Section of the sixteenth Chapter of this Book.

V. *Size for burnished Gold.*

Take Bole-Armoniack three drachms, fine Chalk one drachm; grind them as small as you can together with fair water, three or four times, letting it dry after every time: then take glair and strain it as short as water, with which grind the Bole and Chalk, adding a little Gum-Hedera, and a few blades of Saffron: grind all as small as possible, and put them into an Ox horn (I judge a glass vessel better) and set it to rot in horse dung for six weeks; then take it up, and let it have air, and keep it for use.

Its use is for gilding parchments, book-covers, and leather, thus lay this size first upon the parchment, then with a feather lay the Gold or Silver upon it, which when dry burnish it.

VI. *To Diaper on Gold or Silver.*

You must Diaper on Gold with Lake and Yellow Oker: but upon Silver with Ceruse.

VII. *Aurum Musicum.*

Take fine Crystal, Orpiment, of each one ounce, beat each severally into a fine powder, then grind them together well with glair.

You may write with it, with pen or pencil, and your letter or draught will be of a good Gold colour.

C H A P. XXII.

Of Preparing the Colours.

I. **C**olours, according to their natures have each a particular way of preparation : to wit, by grinding, washing or steeping.

II. The chief *Colours to be ground* are these ; White-lead, Ceruse, Sinaper-lake, Oker pink, Indico, Umber, Colens Earth, Spanish-brown, Ivory-black, Cherystone-black.

III. The chief *Colours to be wash'd* are Red-lead, Masticot, Green Bice, Cedar Green, Ultramarine, Blew Bice, Smalt, Verditure.

IV. The chief *Colours to be steep'd*, are Sap-green, Saffron, Turnsole, Stone-blew, Venice Berries.

V. *To grind Colours.*

Take the colour you would grind, and scrape off from it all the filth, then lay it upon the stone, and with the muller bruise it a little ; then put thereto a little spring water, and grind all together very well, till the colour is very fine ; which done pour it out into certain hollows or furrows cut in Chalkstone, and there let it lie till it is dry, which reserve in papers or glasses.

VI. *To wash colours.*

Put the colour into a glazed vessel, and put thereto fair water plentifully, wash it well, and decant (after a while) the water ; do this six or seven times ; at last put the water (being just troubled) into another glazed vessel, leaving the dregs at bottom : then into

G

this

this second vessel put more fair water, washing it as before, till the water (being settled) be clear, and the colour remain fine at bottom : we have taught another way at the twenty fourth Section of the eighteenth Chapter of this Book.

VII. *To steep Colours.*

Take a quantity thereof, and put it into a shell, and fill the shell with fair water, to which add some fine powder of Alom, to raise the colour ; let it thus steep a day and night, and you will have a good colour.

Where note, Saffron steeped in Vinegar gives a good colour ; and the Venice Berries in fair water and a little Alom, or a drop or two of oyl of Vitriol makes a fair yellow.

VIII. *To temper the Colours.*

Take a little of any colour, and put it into a clean shell, and add thereto a few drops of gum-water, and with your fingers work it about the shell, then let it dry ; when dry, touch it with your fingers, if any colour comes off, you must add stronger gum-water : but being dry, if the colour glister or shine, it is a sign there is too much gum in it, which you may remedy by putting in fair water.

IX. *To help the defects.*

Some colours, as Lake, Umber, and others which are hard, will crack when they are dry ; in this case, in tempering them add a little white Sugar-candy in very fine powder, which mix with the colour and fair water in the shell, till the Sugar-candy is dissolved.

X. These colours, Umber, Spanish-brown, Colen earth, Cherrystone, and Ivory-black, are to be burnt before they be ground or wash'd.

XI. *To burn or calcine Colours.*

This

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This is done in a crucible, covering the mouth thereof with clay, and setting it in a hot fire, till you are sure it is red-hot through: which done, being cold, wash or grind it as aforesaid.

XII. *To prepare shadows for Colours.*

White is shaded with Black, and contrariwise: Yellow with Umber and the Okers: Vermilion with Lake: Blew-bice with Indie: Black-coal with Roset, &c.

CHAP. XXIII.

Of the Manual Instruments.

I. **T**HE manual Instruments are four (by the second Section of the fifteenth Chapter of this Book) to wit, The *Grinding-stone* and *Muller*, *Pencils*, *Tables* to Limn on, and shells or little glasses or China-dishes.

II. The *Grinding-stone* may be of Porphyry, Serpentine or Marble, but rather a Pebble, for that is the best of all others: *Muller* only of Pebble, which keep very clean.

These may be easily got of Marblers or Stone-cutters in London.

III. Choose your pencils thus: by their fastness in the quills, and their sharp points after you have drawn or wetted them in your mouth two or three times; so that although larger, yet their points will come to as small as a hair, which then are good; but if they spread or have any extravagant hairs they are naught.

IV. *To wash your pencils.*

After using them, rub the ends of them well with Soap, then lay them a while in warm water to steep, then take them out and wash them well in other fair water.

V. To prepare the Table.

It must be made of pure fine paste-board, such as Cards are made of (of what thickness you please) very finely slick'd and glazed. Take a piece of this paste-board of the bigness you intend the Picture, and a piece of the finest and whitest parchment you can get (virgin parchment) which cut of equal bigness with the paste-board; with thin, white, new made starch, paste the parchment to the paste-board, with the outside of the skin outwardmost: lay on the starch very thin and even; then the grinding stone being clean, lay the card thereon with the parchment side downwards, and as hard as you can, rub the other side of the paste-board with a Boars-tooth set in a stick; then let it be thorow dry, and it will be fit to work or Limn any curious thing upon.

V I. The shells holding or containing your colours, ought to be Horse-muscle shells, which may be got in July about Rivers sides; but the next to these are small Muscle-shells, or in stead thereof little China or glass vessels.

CHAP. XXIV.

Of Preparations for Limning.

I. **H**Ave two small glass or China-dishes, in either of which must be pure clean water, the one to wash the pencils in being foul; the other to temper

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per the colours with , when there is occasion.

II. Besides the pencils you Limn with ; a large, clean and dry pencil , to cleanse the work from any kind of dust, that may fall upon it, which are called Fitch-pencils.

III. A sharp Pen-knife to take off hairs that may come from your pencil, either among the colours or upon the work ; or to take out spots that may fall upon the Card or Table.

IV. A paper with a hole cut therein, to lay over the card , to keep it from dust and filth, to rest your hand upon, and to keep the soil and sweat of your hand from sulling the parchment, as also to try your pencils on before you use them.

Let the small glasses, waters, pencils and pen-knife lie all on the right hand.

V. Have ready a quantity of light Carnation or flesh colour temper'd up in a shell by it self with a weak gum-water ; if it be a fair complexion , mix White and Red-lead together ; if a brown or swarthy , add to the former, Masticot, or English Oker, or both : but be sure the flesh colour be always lighter than the complexion you would Limn ; for by working on it you may bring it to its true colour.

VI. In a large Horse-muscle shell place your several shadows (for the flesh colour) in little places one distinct from another.

VII. In all shadowings have ready some white , and lay a good quantity of it by it self besides what the shadows are first mixed with : for Red for the cheeks and lips, temper Lake and Red-lead together : for blew shadows (as under the eyes and in veins) Indico or Ultramarine and white : for gray faint shadows , white , English Oker , sometimes

Masticot : for deep shadows , white, English Oker, Umber : for dark shadows, Lake and Pink , which make a good fleshy shadow.

VIII. To make choice of the light.

Let it be fair and large and free from shadows of Trees or Houses, but all clear Skye-light , and let it be direct from above , and not transverse ; let it be Northerly and not Southerly ; and let the room be close and clean , and free from the Sun-beams.

IX. Of the manner of sitting.

Let your desk on which you work be so situate, that sitting before it, your left arm may be towards the light , that the light may strike sidling upon your work : Let the party that is to be Limned, be in what posture themselves will design, but not above two yards off you at most, and level with you ; wherein observe their motion , if never so small, for the least motion, if not recalled, may in short time bring on you many errors : Lastly, the face being finished, let the party stand (not sit) at a farther distance (four or five yards off) to draw the posture of his clothes.

CHAP. XXV.

Of the Practice of Limning in Miniture, or Drawing of a Face in Colours.

I. **T**O begin the Work.

Have all things in a readines (as before) then on the Card lay the prepared colour (answerable to the complexion presented) even and thin, free from hairs and spots, over the place where the Picture is to be : the ground thus laid, begin the work, the party being

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being set, which must be done at three sittings : at the first sitting the face is only dead coloured, which takes up about two hours time : at the second sitting, go over the work more curiously , adding its particular graces or deformities, sweetly couching the colours, which will take up about five hours time : at the third sitting, finish the face, in which you must perfect all that is imperfect and rough, putting the deep shadows in the face, as in the eyes, eye-brows, and ears, which are the last of the work, and not to be done till the hair curtain, or backside of the Picture, and the drape-ry be wholly finished.

II. *The operation or work at first sitting.*

The ground for the complexion being laid, draw the out-lines of the face, which do with Lake and white mingled ; draw faintly, that if you miss in proportion or colour you may alter it : this done, add to the former colour Red-lead, for the cheeks and lips; let it be but faint (for you cannot lighten a deep colour) and make the shadows in their due places, as in the cheek, lips, tip of the chin and ears, the eyes and roots of the hair : shadow not with a flat pencil, but by small touches (as in hatching) and so go over the face. In this dead covering rather than to be curious, strive as near as may be to imitate nature. The red shadows being put in their due places; shadow with a faint blew, about the corners and balls of the eyes ; and with a grayish blew under the eyes and about the temples, heightening the shadows as the light falls, as also the harder shadows in the dark side of the face, under the eye-brows, chin and neck. Bring all the work to an equality, but add perfection to no particular part at this time ; but imitate the life in likeness, roundness, boldness, posture, colour, and the like. Lastly, touch at the hair with a suitable colour in such

curls, folds and form, as may either agree with the life, or grace the Picture : fill the empty places with colour, and deepen it more strongly, than in the deepest shadowed before.

III. *The operation or work at second sitting.*

As before rudely, so now you must sweeten those varieties which Nature affords, with the same colours and in the same places driving them one into another, yet so as that no lump or spot of colour, or rough edge may appear in the whole work ; and this must be done with a pencil sharper than that which was used before. This done, go to the backside of the Picture which may be Landskip, or a curtain of blew or red Sattin : if of blew, temper as much Bice as will cover a card, and let it be well mixed with gum ; with a pencil draw the out-lines of the curtain ; as also of the whole Picture ; then with a large pencil lay thinly or airily over the whole ground, on which you mean to lay the blew ; and then with a large pencil, lay over the same a substantial body of colour ; in doing of which be nimble, keeping the colour moist, letting no part thereof be dry till the whole be covered. If the Curtain be Crimson, trace it out with Lake ; lay the ground with a thin colour ; and lay the light with a thin and waterish colour, where they fall ; and while the ground is yet wet, with a strong dark colour tempered something thick, lay the strong and hard shadows close by the other lights. Then lay the linnen with faint white, and the drapery flat of the colour you intend it. In the face, see what shadows are too light or too deep, for the curtain behind, and drapery, and reduce each to their due perfection ; draw the lines of the eye-lids, and shadow the entrance into the ear, deepness of the eye-brows, and eminent marks in the face, with a very sharp pencil : lastly, go over the hair,

hair, colouring it as it appears in the life, casting over the ground some loose hairs, which will make the Picture stand as it were at a distance from the curtain: *shadow the linnen with white, black, and a little yellow and blew; and deepen your black, with Ivory-black mixed with a little Lake and Indico.*

IV. *The operation or work at third sitting.*

This third work is wholly spent in giving strong touches where you see cause; in rounding, smoothing and colouring the face, which you may better see to do, now the curtain and drapery is limned, than before. And now observe whatsoever may conduce to the perfection of your work, as gesture, scars or moles, casts of the eyes, windings of the mouth, and the like.

C H A P. XXVI.

Of Limning Drapery.

I. **A** Full and substantial ground being laid all over where you intend the drapery; as if blew, with Bice smoothly laid, deepen it with Lake and Indico; lightening it with a fine faint white, in the extreme light places, the which understand of other colours.

II. If the body you draw be in *Armour*, lay liquid Silver all over for a ground, well dried and burnished; shadow it with Silver, Indico and Umber, according as the life directs you.

III. For *Gold Armour* lay liquid Gold as you did the Silver, and shadow upon it with Lake, English Oker, and a little Gold.

IV. For

IV. For *Pearls*, your ground must be Indico and white; the shadows black and pink.

V. For *Diamonds*, lay a ground of liquid Silver, and deepen it with Cherry-stone-black and Ivory-black.

VI. For *Rubies*, lay a Silver ground, which burnish to the bigness of a Ruby: then with pure Turpentine temper'd with Indian Lake, from a small wire heated in a Candle, drop upon the burnished place, fashioning it as you please with your Instruments, which let lie a day or two to dry.

VII. For *Emeraulds*, or any green stone, temper Turpentine with Verdigrise, and a little Turmerick root, first scraped, with Vinegar, drying it, grind it to fine powder and mix it.

VIII. For *Saphyres*, mix or temper Ultramarine with pure Turpentine, which lay upon a ground of liquid Silver polishd.

To make liquid Gold or Silver: see the first Section of the twenty first Chapter of this Book.

CHAP. XXVII.

Of Limning Landskip.

ALL the variable expressions of Landskip are innumerable, they being as many as there are men and fancies; the general rules follow.

I. Alway begin with the Sky, Sun-beams or lightest parts first; next the yellowish beams (which make of Masticot and white) next the blewness of the Sky, (which make of Smalt only.)

II. At

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II. At first colouring, leave no part of the ground uncovered, but lay the colours smooth all over.

III. Work the Sky downwards, towards the Horizon fainter and fainter, as it draws nearer and nearer the earth: the tops of mountains far remote, work so faint that they may appear as lost in the air.

IV. Let places low, and near the ground be of the colour of the earth, of a dark yellowish, or brown green; the next lighter green; and so successively as they lose in distance, let them abate in colour.

V. Make nothing which you see at a distance perfect, by expressing any particular sign which it hath, but express it in colours, as weakly and faintly as the eye judgeth of it.

VI. Always place light against darkness and darkness against light, by which means you may extend the prospect as a very far off.

VII. Let all shadows lose their force as they remove from the eye; always letting the strongest shadow be nearest hand.

VIII. Lastly, Take Isinglass in small pieces half an ounce, fair Conduit-water two quarts, boil it till the glass is dissolved, which save for use: with which mix spirit or oil of Cloves, Roses, Cinnamon or Amber-griese, and lay it on and about the Picture where it is not coloured (lest it should change the colours: but upon the colours use it without the perfumes) so it will varnish your Pictures, and give them a gloss, retaining the glory of their colours, and take from them any ill scent which they might otherwise retain.

C H A P. XXVIII.

Of Light and Shadow.

Lights and shades set in their proper places in such a just and equal proportion, as Nature doth give, or the life require give a true Idea of the thing we would represent; so that 'tis not any colour whatsoever, nor any single stroke or strokes which is the cause thereof, but that excellent Symmetry of Light and Shadow, which gives the true resemblance of the light.

I I. In shadowing, be careful you spoil not your work by too gross a darkness, whether it be hard or soft.

I I I. This Observation of light and dark is that which causeth all things contained in your work to come forward or fall backward, and makes every thing from the first to the last to stand in their just places, whereby the distance between thing and thing seems to go from you or come to you as if it were the work of Nature it self.

I V. Suppose it were a plaister Figure, take good notice what appears forwards and what backwards, or how things succeed one another; then consider the cause which makes them in appearance either to incline or recline, and consider the degrees of light and darkness, and whether they fall forward or backward, accordingly in your draught give first gentle touches, and after that heighten by degrees according as the example and your own ingenuity shall direct.

V. Those parts are to be heighten'd in your work which

which appear highest in your Pattern : The greatest life which we can give on white paper is the paper itself, all lesser lights must be faintly shadowed in proportion to their respective degrees. But on coloured paper white Crions and Tobacco-pipe-clay are used for the first and second heightenings, putting each in their proper places, as more or less light is required, which is a singular observation in this manner of drawing. Then you must take heed you heighten not too many places, nor heighten any thing more than what is needful, nor too near the dark or shadows, or any out-line, (except where you intend some reflection,) lest your work shew hard and rough. In heightening, or such figures as require great light, put the greatest light in the middle, and the lesser towards the edges for the better perspicuity of your work. Lastly, leave sufficient faint places on the ground of your paper between your lights and shades, that they may appear pleasantly with a singular plainness and smoothness.

VI. In reflection, use it in delineating, glittering, or shining bodies, as Glasse, Pearl, Silver, &c. let the cause of the reflection, be it more or less, be seen in the thing it self.

VII. In plain drawing, lay all your shades smooth, whether it be in hatching or smutching, keeping every thing within its own bounds, and this is done by not making your shades at first too hard, or putting one shadow upon another too dark.

VIII. Observe that the greater parts of light and shadows, and the small parts intermixt in the same, may always so correspond as thereby to make more apparent the greater.

IX. In Pictures, let the highest light of the whole, (if any darkness stand in the middle of it) appear
more

more dark than indeed it is: and in working always compare light with light and dark with dark, by which you will find the power of each, and the general use thereof in all operations.

X. We think it necessary to shew another way of making all sorts of Crions or Pastills than what we taught in the beginning of this Book, Thus: Take Tobacco-pipe-clay and with a little water temper the same what colour you please, making several according to the several heights you intend, which mix with the said Tobacco-pipe-clay so much as the clay will bear, work all well together, make it into Pastills, and let them dry for use.

CHAP. XXIX.

Of Colours more Particularly.

I. **O**ker is a good colour, and much in use for shadows, in Pictures of the life, both for hair and drapery: In Landskips it is used for Rocks and high ways.

II. *Pink*, the fairest, with blew, makes the fastest greens for Landskip and Drapery.

Sap-green and green-bice are good in their kind; but the first is so transparent and thin, the other of so coarse and gross body, that in many things they will be useless, especially where a beautiful green (made of Pink and Bice mixed with Indico) is required.

III. *Umber*, is a greasie foul colour; but being calcined and ground, it works sharp and neat.

IV. *Spanish-brown*, is exceeding coarse and full of gravel; being prepared, it is used for a mixture made

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made of Red-lead mixt with a little Umber, which makes the same colour.

V. *Colens earth* or *Terra Lemnia*, it is used to close up the last and deepest touches in the shadows of Pictures of the life, and in Landskips; use it when new ground.

VI. *Cherry-stone-black*, is very good for Drapery and black apparel: mixt with Indico, it is excellent for Sattin; it appears more beautiful or shining if mixed with a little white: if deepned with Ivory-black, in hard reflections, and strong deep touches, it is wonderful fair.

VII. *Ivory black*, it serves for a deep black, but is not easie to work without it be well tempered with Sugar-candy, to prevent peeling.

VIII. *Red-lead*, well wash'd, is a glorious colour, for those pieces which require an exquisite redness.

IX. *Indian-lake*, is the dearest and most beautiful of all reds; it is to be ground as white-lead, and mixt with a little white Sugar-candy and fair water, till the colour and Sugar-candy be thoroughly dissolved, which being dry will lie very fast, without danger of cracking or peeling.

CHAP. XXX.

Observations of making some Original Colours.

I. **T**o make white-lead.

Put into an earthen pot several plates of fine Lead, cover them with White-wine Vinegar, covering

vering the top of the pot close with clay, bury it in a Cellar for seven or eight weeks, and you will have good white lead upon the plates, which wipe off.

II. *To make Verdigrise.*

This is made by hanging plates of Copper over the fumes of *Aqua-fortis* or spirit of Nitre : or by dipping them in the same or in Vinegar.

III. *To make an Emerald Colour.*

Take Verdigrise in fine powder, which temper with varnish, and lay it upon a ground of liquid Silver burnisht, and you have a fair Emerald.

IV. *To make a Ruby Colour.*

Mix the same with Florence Lake, and you shall have a very fair Ruby colour.

V. *To make a Saphyre Colour.*

The same, viz. Verdigrise mixt with Ultramarine, makes a glorious Saphyre.

VI. *To make a Crimson Velvet.*

Take Turnsoil and mix it with Indico-lake (well ground with gum and Sugar-candy) lay it full, and when it is wet, wipe away the colour with a dry pencil, where you would have the heightening of the Crimson Velvet appear, and the stronger reflections will be well expressed.

VII. *To make a Silver Black.*

Take fine Silver filings or plates, which dissolve in spirit of Nitre or *Aqua-fortis*, and evaporate to driness, or precipitate with *Oleo Sulphuris* or Salt-water, and you shall have a snow-white precipitate, which mixt with water makes the best black in the world, to dy all manner of Hair, Horns, Bones, Wood, Metals, &c.

VIII. *To make a Murry or Amethyst.*

It is made of Indian Lake ground with Gum-Arabick water only.

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IX. To make a Red or Ruby for Limning.

It is made of Indian-lake (which breaks off a Scarlet colour) ground with Gum-water and Sugar-candy.

X. To make Azure blew, or Saphyre.

It is made of Ultramarine of Venice (which is best) the best blew Smalt, or blew bice ground with gum-water only: you may make good shadowing blews of Indico, Flory and Litmose, all which need no washing, nor Litmose no grinding, but only infused in a Lixivium of Soap-ashes.

XI. To make a green or Emerald.

It is made of Cedar green: in place whereof, take tripal to draw with: Pink is good also for Landskips, mixed with Bice-ashes; as also with Malticot and Ceruse.

XII. To make a Yellow or Topaz.

It is made of Malticot which is the best, of which there are divers sorts, viz deeper and paler: Yellow-Oker also for want of better may do. Shadow Malticot with Yellow-Oker; deepen it with Oker-de-Luce.

XIII. To make Ultramarine.

Take the deepest coloured *Lapis Lazuli* (having few veins of Gold upon it) heat it red-hot in a Crucible close covered, then quench it in Urine, Vinegar or water in a Leaded earthen pot, dry it well, then with a pair of pinfers nip off the hard, gray, and whitest part from it, and grind the remainder with honied water as fine as may be, then dry it for use. The honied water is made of water a quart, boiled with honey two spoonfuls.

C H A P. XXXI.

The sum of the Observations of Limning to the life in general.

I. **L**ET the Table be prepared very exactly by the fifth rule of the twenty third Chapter of the second Book.

II. Let the ground be of flesh colour, tempering it according to the complexion to be painted.

III. If it be a fair complexion, mix a good quantity of Red and White Lead together somewhat thick.

IV. If swarthy or brown, mix with the former a little fine Masticot or English Oker, or both, always observing that your ground be fairer than the complexion painted.

For fairness may be shadowed or darkened at pleasure; but if it be sad or dark, you can never heighten it, for in Limning the picture is always wrought down to its exact colour.

V. Lay the ground upon the Card or Tablet, with a larger pencil than ordinary, free from spots, scratches of the pencil, or dust, and as even as possible may be; and let the colour be rather thin and waterish than too thick, doing it very quick and nimbly with two or three dishes of the pencil.

VI. This done, prepare your shadows in order, by the seventh rule of the four and twentieth Chapter of the second Book.

VII. Then draw the out-lines of the face with Lake and white mingled together very fine; so that if you should

should mistake in your first draught, you may with a strong itroak draw it true, the other line by reason of its faintness being no hinderance.

These lines must be truly drawn, sharp and neat, with the greatest exactness imaginable.

VIII. Observe the most remarkable and deep shadows, to keep in memory when you go over them with more exactness; drawing out also (if you so please) the shape of that part of the body next adjoining to the face, viz. a little beneath the shoulders, with a strong and dark colour, which in case of mistake in proportion may easily be altered.

IX. The first sitting is to dead colour the face: the second sitting is the exact colouring and observation of the severall shadows, graces, beauties or deformities, as they are in Nature: the third sitting is in making smooth what was before rough and rude; clothing what was naked, and giving strong and deepning touches to every respective shadow.

X. The dead colour is thus made.

Take of the aforesaid ground (at the third or fourth Section of this Chapter) and mix it with fine Red-lead, tempering it exactly to a dead colour of the cheeks and lips, having a great care, that you make it not too deep; which if light, you may do at pleasure.

XI. The face is first begun to be coloured in the reds of the cheeks and lips, and somewhat strongly in the bottom of the chin (if beardless) also over, under, and about the eyes with a faint redness.

XII. The ear is most commonly reddish, as also sometimes the roots of the hair.

XIII. The ground being wash'd over with this reddish

reddish-or dead colour, ~~At~~ the shadows be as well bold and strong as exact and curious.

A good Picture, if but dead coloured only, and seeming near hand very rough, uneven and unpleasant, yet being boldly and strongly done and shadowed will appear very smooth, delicate, and neat if but viewed at a distance from the eye. Therefore curiosity and neatness of Colour, is not so much to be regarded, as bold, lofty, and strong expressing what is seen in the life.

XIV. The next thing to be done is the use of the faint blews, about the corners and balls of the eyes and temples, which you must work out exceeding sweetly, and faint by degrees.

XV. Always be sure to make the hard shadows fall in the dark side of the face, under the nose, chin, and eye-brows, as the light falls, with somewhat strong touches.

XVI. The light shadows being done and smoothed work the hair into such forms, curlings, and dispositions as best adorn the piece.

First draw it with colours, neatly and to the life; then wash it roughly as the rest; and the next time perfect it: filling up the empty places with colour, and the partings thereof with blew.

XVII. And ever remember, when you would have your colours or shadows deep, strong, and bold; that you do them by degrees, beginning faintly, and then encreasing the same.

XVIII. First, use the former colours in the same places again, driving and sweetning them into one another, that no part may look uneven, or with an edge, or patch of colour, but altogether equally mixt and dispersed, lying soft and smooth, like smoak or vapours.

XIX. Se-

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XIX. Secondly, this work being done for an hour or two, lay the ground for behind the Picture of Blew, or Crimson, like to a Sattin or Velvet Curtain.

XX. If blew, let it be done with Bise well tempered in a shell: First draw the out-lines with the same colour, with a small pencil: then with a thin and waterish blew wash over the whole ground with a larger pencil: lastly, with thicker colour cover the same which you before wash'd, swiftly, that it dry not before all be covered, so will it lie smooth and even.

XXI. If Crimson, work with Indian-lake, in those places where the strong lights, and high reflexions fall: let the light be done with thin and waterish Lake; the deepning and strong shadows, close by the light with thicker colour: this done, the Picture will be much changed; the beauty of these grounds will much darken and dead it.

XXII. Let the apparel with suitable colours be done only flat with heightening or deepning; and then go over the face again, reducing the shadows to smoothness and neatness with a sharp and curious pencil: drawing the eyes, the lines of the eye-lids; redness of the nostrils; shadow of the ears; deepness of the eye-brows, and those other remarkable marks of the face: *so sweetning the out-lines of the face (by darkning the ground, above from the light side, and below on the dark side) that when the work is done, the ground may stand as it were at a distance from the face behind; and the face may seem to stand off forward from the ground.*

XXIII. Then go over the hair, making it light or deep by the life: and in apparel make the several folds and shadows, and what else is to be imitated, as it is in

the life it self; lightning the lines with the purest white, a little yellow and some blew; and deepening with Ivory black, and heightning with black mixed with a little Lake or Indico.

XXIV. This done, and the person gone, your work being yet rough, by your self polish it, and strive to make it smooth and pleasant, filling up the empty places, and sweetning the shadows, which yet lie uneven and hard.

XXV. The apparel, hair, and ground being finished, now give strong touches for the rounding of the face; and observe whatsoever may conduce to likeness and resemblance, as moles, smiles, or glancings of the eyes, motion of the mouth, &c. for which purpose, you may find an occasion of discourse, or cause the person to be in action, and to look merrily and cheerfully.

XXVI. Lastly conclude, that the eye gives the life; the nose the favour; the mouth the likeness; and the chin the grace.

XXVII. In fair coloured drapery, if the lightning be done with fine shell Gold it will add a most wonderful lustre, and be a singular ornament to your work; and if this Gold be mixt with the very ground it self, the apparel will appear much the fairer.

CH A P. XXXII.

Of Limning Landskip, more particularly:

I. **T**O make the Tablet for Landskip.

Take a piece of Vellum, and shave it thin upon a Frame, fastning it with past or glew, and pasting it upon a board; and this manner of Tablets are altogether used in Italy for Landskip, and History.

II. If you draw a Landskip from the life take your station from the rise of ground, or top of an hill, where you shall have a large Horizon, marking your Tablet into three divisions downwards from the top to the bottom: then your face being directly opposed to the midst of the finitor, keeping your body fixed, depict what is directly before your eyes, upon your Tablet on your middle division, then turning your head (not your body) to the right hand, depict what is there to be seen: adjoining it to the former. *In like manner doing by that which is to be seen on the left hand, your Landskip will be compleated.*

III. Make every thing exact, not only in respect of distance, proportion and colour; but also in respect of form, as if there be *Hills, Dales, Rocks, Mountains, Cataracts, Ruines, Aquaducts, Towns, Cities, Castles, Fortifications*, or whatsoever else may present it self to view; making always a fair Sky, to be seen afar off; letting your light always descend from the left hand to the right.

IV. In beginning your work, first begin with a large Sky; and if there be any shining or reflexion of the Sun, beware you mix no Red-lead in the Purple

of the Sky, or Clouds, but only with Lake and white: the yellow and whitish beams of Sol work with Masticot and white.

V. Then with a fresh or clean pencil finish the blewish Sky, and Clouds, with Smalt only: at the first working, dead all the work over, with colours suitable to the Air, green Meadows, Trees, and ground, laying them somewhat smooth, not very curiously, but slightly and hastily; make a large Sky, which work down in the Horizon, faintly, but fair; and drawing nearer to the earth, let the remote Mountains appear sweet and misty, almost indistinguishable, joyning with the Clouds, and as it were lost in the Air.

VI. The next ground colour downwards must encrease in magnitude of reason, as nearer the eyes, somewhat blewish or Sea-green: but drawing towards the first ground, let them decline into a reddish or popinjay-green: the last ground colour, must be nearest the colour of the earth, viz. a dark yellow, brown and green; with which, or some colour near it, you must make your first Trees; making them, as they come near in distance, to encrease proportionably in colour and magnitude, with great judgement: the leaves flowing and falling one with another, some apparent, others lost in shadow.

VII. Let your Landskip lie low, and as it were under the eye (which is most graceful and natural) with a large and full Sky not rising high, and lifting it self into the top of the piece, as some have done.

VIII. Be sure to make your shadows fall all one way, viz. to make light against darkness, and darkness against light; thereby extending the prospect, and making it to shew as afar off; by losing its force and vigour, by the remoteness from the eye.

IX. In touching the Trees, Boughs and Branches,
put

put all the dark shadows first, raising the lighter leaves above the darker; by adding Masticot to the dark green, which may be made with Bice, Pink, and Indico: the uppermost of all, exprest last of all, by lightly touching the exterior edges of some of the former leaves, with a little green, Masticot, and white: the darkest shadows you may set off with Sap-green and Indico.

X. Trees and their leaves, Rivers, and Mountains far distant, you must strive to exprest with a certain real softness and delicateness: in making Cataracts, great falls of Waters, and Rocks, you must first lay a full ground near the colour, then with a stronger in the dark places, and slight heightning in the light: remarking all disproportions, cracks, ruptures and various representations of infinitely differing matters; the manner whereof is abundantly exprest, in almost every Landskip.

CHAP. XXXIII.

Of the various Forms or Degrees of Colouring.

I. **T**Here are four various Forms or degrees of colouring, viz. 1. *Of Infants, or Children.* 2. *Of Virgins, or fair Women.* 3. *Naked bodies.* 4. *Old or aged bodies.*

II. *Infants or young Children* are to be painted of a soft and delicate complexion; the Skin and ears of a ruddy and pleasant colour, almost transparent; which may be done with White-lead, Lake, and a little Red-lead; shadowing it thin, faint and soft; letting the
 Cheeks,

cheeks, lips, chin, fingers, knees, and toes, be more ruddy than other parts; making all their linnen very fine, thin, and transparent, or perspicuous, with strong touches in the thickest folds.

III. *Virgins and fair Women* are as curiously to be exprefs'd as the former, but their Muscles are to be more apparent, their shape more perfect; and their shadows to be of a whitish yellow, blewish, and in some places almost purple; but the most perfect and exquisite direction is the life, which ought rather to be followed than any thing delivered by rule.

IV. *Naked bodies* are to be painted strong, lively, and accurate; exactly matching the respective pairs of Muscles and Nerves, fixing each Artery in its due and proper place, giving each limb its proper motion form and situation, with its true and natural colour; all which to do well may be the study and practice of almost ones whole life.

V. *Old or aged bodies* ought to be eminent for exact and curious shadows, which may be made of Pink, Lake, and Ivory-black, which make notable shadows, in appearance like the wrinkles and furrows of the face and hand in extream old age: let the eyes be dark, the aspect melancholy, the hair white (or else the pate bald) and all the remarks of Antiquity or age be very apparent and formidable.

VI. But notwithstanding all the foregoing rules, the posture or form of standing, and being either of the whole body, or any of its parts, ought diligently to be observed, that the life may be imitated, in which, it only lies in the breast and judgment of the Painter to set it off with such various colours, as may best besit the respective complexion and accidental shadows of each accidental

tal position or posture, which are sometimes more pale, sometimes more ruddy; sometimes more faint, sometimes more lively.

C H A P. XXXIV.

Of the Limning of the Skie, Clouds, &c.

I. **F**OR a beautiful Sky, fitted for fair weather, take Bice tempered with white, laying it in the upper part of the Sky, (as you see need) under which you may lay a thin or faint purple with a small soft brush: working the undermost purple into the uppermost blew; but so as that the blew may stand clear and perfect: then for the Horizon or near the same lay a fine thin Masticot, which work from below upwards, till it mix with the purple, after which you may take a stronger purple, making here and there upon the former purple, as it were the form of Clouds, as nature requires: upon the Masticot you may also work with Minium mixed with Ceruse, to imitate the fiery beams which often appear in hot and clear Summer weather.

II. To imitate glory, with a great shining light of a yellowish colour or the Sun-beams, you must take Masticot, or Saffron mixt with Red-lead, and heightened with shell gold, and the like.

III. A Cloudy Sky is imitated with pale Bice, afterwards shading the Clouds with a mixture of several colours: a fair Sky requires clouds of a greater shade, with purple: the clouds in a rainy Sky, must be shaded with Indico and Lake: in a night Sky, with black and dark blew smoaky, making a blaze with purple

purple, Minium and Ceruse: the clouds in a Sun rising or setting must be done with Minium, Ceruse and purple, making underneath the clouds scattering stroaks, with Minium and Masticot, or Minium and Saffron; so that the scatterings upwards may appear faint: and below, afar off near the Landskip, somewhat fiery.

IV. A fiery Sky, let be made with a pale blew, smoothing it downwards, which afterwards, you must mingle with a strong Red-lead, mixt with Ceruse, making long diminutive stroaks like the Sunbeams upon the blew Sky, with which let fall some purple stroaks, much like the said beames; lastly, sweeten one into another with a soft brush pencil, wet in gum-water, not too strong.

V. Lastly, you may make a fair Sky, by using fair Bice alone, and tempering it by degrees with more and more white, smoothing one into another, from above downwards, and shading it as you shall see reason and nature require.

CHAP. XXXV.

Of the Limning of Towns, Castles, and Ruines.

I. **T**Hose Towns, or Cities, which seem at farthest distance, must have but little shadowing or heightening, and sometimes none at all, these if they appear against the Sky, must be laid with Bice, and a little purple, and shaded faintly with a good blew.

II. Those which lie at a farther distance, must be laid

laid with Bice and purple as aforesaid, and shaded with light blew, and heightened with white.

III. Those which appear at an ordinary distance, must be done with Vermilion and purple, and shaded with a strong purple shaded with white.

IV. Those which are near, must be done with Vermilion and white, and then shaded with a strong Vermilion and brown Oker, mixt with white.

CHAP. XXXVI.

Of Mountains, Hills, and the like.

I. **T**Hose Mountains which are next in sight, must be laid with a fair green, and shaded with Sap-green; sometimes with brown Oker, and *French Berries*, to distinguish them from such as are farther off.

II. Such as lie farther off, must be laid with green, blew, and Masticot, and be shaded with blew, green, and Verdegriese.

III. Such as lie yet farther, must be laid with some strong blew, white, and Bergh-green, and shaded with strong blew.

IV. Such as lie yet farther, must be laid with strong blew and white, and shaded with blew only.

V. Such as lie yet farther, with Bice and white, and shaded with Bice.

VI. Such as lie farther off, are only laid with white, and shaded with a faint Bice.

VII. Fields being near, must be done with a singular good green, the which must always be faintest, according as they are farther distant; heightening them with

with Masticot, or a light green, and shading with Sap-green, but not too much: those which lie far, are to be laid with a *French* berry yellow, made of a blew greenish, shaded with Oker.

VIII. And in Fields, Hills, and Dales (whether near, or far off) there are many roads, passages and ways, which must be laid either fainter or stronger according to their distance and situation.

C H A P. XXXVII.

Of Trees, Boughs, Cottages, and the like.

I. **T**Hose Trees of divers colours which stand upon the fore-ground, must be laid with divers colours as with Verdegriese, mixt with other green, or with masticot, and Bergh-green mixt, and then shaded with Sap-green; which you may heighten with Masticot, mixt with White-lead.

II. If they appear yellow, use Verdegriese and Masticot mixt, and shadow with Verdegriese.

III. If they be of a whitish colour, let them be laid with Verdegriese mixt with White-lead, and shade them with Verdegriese, mixt with Indico faint; heighten them with Ceruse, that they may look of a faint yellow green; or else with a little Indico and yellow.

IV. Those which stand at a great distance, lay with Indico, and white, and shadow with Indico, and heighten with the same made a little lighter.

V. If Trees be very old with moss upon them, give them the appearance of green and yellow, which commix of Pink, and Bergh-green: if they be of a whitish

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whitish yellow, do them with Pink and white mixt with a little green.

VI. Country Cottages lay with light Oker, which order according to the newness or oldness of the building.

VII. Cottages of Timber, let be laid of the colour of Trees and Wood-work.

VIII. Thatcht Cottages if new, lay with Pink, shadow with brown Oker, and heighten with Masticot mixt with white: but if old, lay them with brown Oker mixt with white, and heighten with the same.

IX. Straw colours at a distance are done with Indico and white, mixt sometimes with brown Oker, and shaded with Indico.

C H A P. XXXVIII.

Of the Colouring of Naked Figures.

I. **F**OR Women and Children, take the best Flake White-lead, and a little good Lake, with which if you please you may mix a little Vermilion, but take heed that your mixture be neither too red or too pale, but exactly agreeable to the life it self; the which in this case is the best director: this being dry touch the lips, cheeks, chin, fingers, and toes with thin Lake, and then heighten with white mixt with a little Lake or Vermilion.

II. But if you would cover them somewhat brownish, mix with your Carnation, a little brown Oker; and shade it with Red-Oker, and coal-black with a little Lake.

III. In old Women take White, Vermilion and brown-

Brown-Oker, and give the lustre where it ought to be with Vermilion mixt with a little Lake: shade it with Red-Oker and Lake, or with Wood foot, or Lamp-black, and heighten with white mixt with a small quantity of Vermilion.

IV. Dead Children and young Women, paint with Brown-Oker, white and some Vermilion, and shadow the same with the foot of wood.

V. Dead old Women colour with Brown-Oker mixt with a little white, which shade with a thin foot of wood first, then with a stronger.

VI. Young men paint with Ceruse, Vermilion and Lake, making it a little browner than for young Women; giving them lustre with Vermilion and Lake, shadowing with Lamp-black and Brown-Oker; and heightening with Ceruse and Vermilion.

VII. Old Men Limn with Vermilion, Brown-Oker, and white; shade with foot and Lamp-black; heighten with Vermilion, Brown-Oker, and white, and give it a lustre with Lake or Vermilion.

VIII. Dead men colour with Brown-Oker, white, and a little Vermilion, as your discretion shall inform you, and shade with foot, or Lamp-black mixt with a little Ceruse.

IX. Devils, Satyrs, and the like Limn with Brown Oker, mixt with a little white and red, which mixture let be made some part whiter, some part browner; and strongly shade it with foot, as your own ingenuity may inform you.

C H A P. XXXIX.

Of the Colouring of Hair.

I. **T**HE Hair of Women and Children is coloured with simple Brown-Oker, and heightened with Masticot: The same in the hair of men, only making it sadder or lighter as the life requires.

II. Hair which is black may be done with soot, or Lamp-black, but it will abide no heightning.

III. Childrens Hair is sometimes laid with brown, oker and white, and heightned with the same; and sometimes with Alom.

IV. Sometimes also they are done with light-oker, and deepned with brown-oker, and heightened with Masticot simple.

V. Old Womens Hair with brown-oker and black, heightned with brown-oker and white.

VI. In Gray Hair take more black than white, and heighten with pure white.

C H A P. XL.

Of walls, Chambers, and the like.

I. **F**OR a brick Wall take Vermilion and white, and shadow with Red-oker.

II. If the ground of the wall is laid with black and white, shade it with a thin black, if with Red-oker
I and

and white, shade it with purple : or with Lake and black, or Red-oker simple.

III. If it be laid with black, white, and purple, shade it with purple and black,

IV. If the wall belongs to any Chamber or Hall, having Figures or Statues ; so order and temper your colours, with such distinction, that the Figures and Wall be not drowned in each other.

V. Sandy fore-grounds do thinly with brown-oker, sad or light as the life presents ; shadow the same with the same brown-oker, and Rocks with Red-oker, according as they are near to, or far from the sight.

CHAP. XLI.

Of Marble Pillars, Rocks, and the like.

I. **M**Arble must be done with a good and light pencil, after a careless manner in imitation of Nature, wherein all such stains, colours, veins, and representations of the faces of living things must be carefully observed.

II. The like is to be observed in Rocks, of Sandy colours, and ragged forms ; which if seen at a great distance, must be coloured with thin Bice, and then heightened with purple and white, and shaded with Smalt or a deep blew.

III. If they seem near, colour them with brown-oker mixt with white, which go over again with Vermilion mixt with white, after which lay here and there some Verdegriese mixt with some other green.

IV. In these works you must make spots, stains and breakings,

breakings, with hatchings, which shade with the foot of Wood or Lamp-black mixt with a little white.

C H A P. X L I I.

Of the Colouring of Metals.

I. **F**OR Gold colour, take Red-lead, Saffron, and very light Oker, with which colour all manner of Cups, Dishes and the like, which shade with foot, and heighten with shell Gold.

II. For Silver, lay a thin white, which shade with a thin blew, mixt with a little black, and heighten with shell Silver.

III. For Tin and Iron, take white and Indico, and shade it with Indico and Bice, and heighten with white or shell Silver.

IV. For Brass, take thin Pink, shade it with Indico mixt with green, or with almost all Indico, and heighten it with shell Gold.

V. For Copper, take Red-oker and white, shade it with Red-oker, and heighten with Red-oker and white, heightening also here and there, where the light falls, with shell Silver.

C H A P. XLIII.

Of the Colouring of Flowers.

I. **T**HE Tulip, draw it first with black-lead upon a white ground, then shade it a little (as for a white Flower) with thin Indian Ink, or with green yellow Ink, or with black-lead ground with thick gum wafer; then lay on your several colours resembling Nature, which being dry, shade with a higher colour, and then farther shadow it, according to the nature of the Flower: so that being finished it may be like flame, red, blew, lake, purple, spotted, or otherwise, in imitation of the life.

II. The Damask Rose, lay with Lake mixt with white, shadow with the same mixt with thin Lake; and heighten with white.

III. The green leaves are done with Verdegriese mixt with some French berry green, shade it with Verdegriese mixt with Sap-green; the stalks lay somewhat browner with brown-oker.

IV. Red Roses do with fine Lake mixt with white, shade it with brown Lake, and heighten it with Lake mixt with white.

V. White Roses colour with Flake Lead, shade it with white and black (but the chief shadows with a stronger black) and heighten with white.

VI. The little thrums (which some erroneously call seeds) in the middle of the Rose, lay with Masticot, and shadow with Minium, and heighten with white.

VII. The Clove-gilliflower is done almost like the
Red-

Chap. 44. *Of Radishes, Turneps, &c.* 125

Red-rose: the specking or spotting of it is done with Lake; those which are lighter, with a lighter red upon a pure white; those like flames with Vermilion and Lake, which shade with a stronger Lake; and speck the white with Lake and Vermilion, to resemble the life.

VIII. The green stalks, or branches and leaves lay with Bergh-green, and shade with Sap-green.

IX. The Marigold do with yellow Orpiment and Minium, shadow with Vermilion and Lake mixt with Minium; and heighten with white and Masticot.

X. Corn-flowers lay with blew mixt with some white, shadow with Indico, and shadow with blew and white.

CHAP. XLIV.

Of Radishes, Turneps, Melons, Cucumers, and Cabage.

I. **R**Adishes are done with white, shaded with Lake, and as it were behind sweetned with purple; and sometimes with green from the top downwards: The green leaves at top with Verdegriese mixed with Sap-green, shaded with Sap-green, and heightned with Masticot.

II. Turneps are laid with white, shaded with foot; the leaves as the Radish leaves.

III. Yellow Melons with yellow, shaded with brown-oker; the veins with a stronger brown-oker, and then heightned with white.

IV. Green Melons with Indico mixt with Verdegriese

grieze and Sap-green, shaded with Sap-green and Indico ; and heightened with Masticot.

V. Cucumers, the ends with a thin yellow, the middle with green, sweetned the one into the other, and shaded with Sap-green ; but the whole fruit with brown-oker, the specks lay with red and black to the life.

VI. Cabbage white with very thin yellow, and in some places with very thin green (or yellowish green) sweetning with very thin brown-oker mixt with Sap-green ; heighten with pure white.

VII. Cabbage red, lay with purple, shade with Lakmus, and heighten with purple mixt with white.

CHAP. XLV.

How to Colour Fruits.

I. **C**Herries, with Vermilion and some Brazil, shade with Lake, heighten with Vermilion mixt with white.

II. Heart Cherries in the middle with Vermilion and Lake mixt with white, the Circumference remaining whitish, here and there sweetning them with Lake, and heightening with white, or mixt with a little Lake.

III. A Pear with masticot, shaded sweetly with brown-oker ; its blush with Lake not too high, heighten with white.

IV. Apples with a thin Masticot mixt with Verd-grieze, shade them with brown-oker, and give their blush with a thin or deep Lake (resembling Nature) and heighten with white: if you will have them

them very high, mix your white with some Masticot, but this must be according to the condition of the Fruit whether ripe or unripe, red, yellow or green, &c.

V. Mulberries with a very strong Brazil, and then lay'd over with black, so that between the stalks and berries they make look a little reddish according to Nature.

VI. Strawberries with a white ground, which draw over with Vermilion and Lake very thin; shade it with fine Lake, and heighten with Masticot mixt with Minium; and then with white only speck them with Lake, by one side of which put a smaller speck of white.

VII. Wall-nuts with their green on, with Verdegriese mixt with Sap-green, shade with Sap-green and a little white.

VIII. Wall-nuts without their green, with brown-oker, shaded with foot.

IX. Blew Plums with purple, shadowed with Bice, and about the stalks with a little green, well sweetned; heighten with purple and white.

X. White Plums and Peaches with thin Masticot, shaded with brown-oker; give them a blush with Lake, and heighten them with white.

XI. Red and Blew Grapes with purple, shaded with blew, and heightned with white.

XII. White Grapes with thin Verdegriese (called also *Spanish green*) mixt with Masticot, shadow with thin Verdegriese; and heighten with Masticot mixt with white.

C H A P. XLVI.

Of the Limning of Fowls.

I. **T**HE Eagle with black and brown-oker, shadow it with black, the feathers heighten with brown-oker mixt with white: the bill and claws lay with Saffron, and shade it with foot or Lamp-black: the eyes with Vermilion heightned with Masticot, or with Saffron shaded or deepned with Vermilion; let the talons be done with black.

II. The Swan with white mixt with a little black, heighten it with fine and pure white, so that its plumes or feathers by that heightning may look well: the legs with a black colour: the bill with Vermilion, shaded with Lake: the eyes yellow with a black round in the middle; from which falls a blackish vein, descending to the bill.

III. The Goose with more white than black, viz. a light gray, heighten it with a grey white; the legs with black: the bill like the Swan.

IV. The Duck with a light grey, the head with a dark blew, and dark green neck sweetly enterwoven, the belly with white, the legs with black mixt with a little white, &c. but be sure to imitate the life.

V. The Turkey with black mixt with a little white, from the back towards the belly whiter by degrees, but the belly speck with black, and in like manner the wings: let him be shaded with black, the wings with Indico, shaded with stronger Indico, the bill with black, the eyes blew, heightned with white. He being angry the naked skin of his neck will

will be blood red, which lay with Vermilion mixt with Lake, shaded with Lake: but otherwise lay it of a whitish blew colour.

VI. The Griffon with Saffron, shadowed with brown-oker or foot.

VII. The Pheasant with grey, made of white and black, the feathers of a white grey, the whole must be shaded with black, and heightned with pure white; the eyes like the Falcon, the legs with Pink, and shaded with black.

VIII. The Falcon with brown-oker, and black mixt with white, and shadowed with black, the feathers must be pleasantly drawn with black, and sprinkled upon its breasts; heighten it with white, let his talons be black, above the eyes lay with Saffron, and shade with Vermilion, the bill with grey.

IX. The Stork with grey, heightned with white, and the corners of his wings (near one half) with black, his long bill and legs with Vermilion, shaded with Lake.

X. The Owl with Ceruse, black and foot, shadowed with foot, and heightned with yellow-Oker and white, sometimes white alone, the eyes yellow, circled with white, the legs of a brown yellow.

C H A P. XLVII.

Of Limning of Beasts.

I. **S**heep with a thin white, shaded with Indico and foot, and heightened with white.

II. Hogs with brown-oker, shaded with foot, and heightened with Masticot: you may as you see occasion colour the hair here and there with stronger brown-oker; his eyes with Vermilion, which heighten with Masticot, his mouth with Indico, or white and black, shaded with black.

III. A Bear with brown-oker, red-oker, and black mixt; shadow with foot alone, or mixt with black, and heighten with brown-oker and white.

IV. A Wolf with brown-oker and foot, shadow with more foot.

V. A gray Wolf with black, white, and brown-oker, shaded with black and foot, or black only; the mouth with black and red-oker, shaded with black and foot heightened with red-oker and white.

VI. The Elephant (which is of a Mouse gray) with black and white mixt with foot, and shaded with black and foot, and heightened with the same, with a little more white; the nose at the end of his trunk, inwardly must be laid with Vermilion and Ceruse, shadowed with black, or black mixt with Lake: in the same manner the inner part of the ears, the eyes with white tending to a grey.

VII. Mice are coloured as the Elephant: Rats a little browner.

VIII. The Unicorn with a pure white, shaded with

with black : the chaps red, the eye and hoofs with a thin black.

IX. The Heart with brown-oker, shaded on the back with foot, which sweetly drive towards the belly, and shade over again with a stronger foot ; the neck and belly with white, the mouth and ears a little reddish, the hoof black, the horns with foot, and shaded with foot mixt with black.

X. The Hind with the same colours as the Hart, but thinner, and higher, not so brown.

XI. The Coney with black and white, his belly all white, sweetned with black ; and heightened with a stronger white.

XII. The Hare with brown-oker, his belly below a little whitish ; shade it on the back with foot, and heighten on the belly with white.

XIII. Apes, Monkeys and the like, with Pink and black, heightened with Masticot and white ; the face lay with a thin black mixt with foot, shaded with black and Pink mixt with a little red-oker.

XIV. Cats if gray and brownish, or tabby, with Indico, blew and white, heightened with pure white, and shaded with Indian blew and black mixt : in other colours use your discretion.

XV. The As with black mixt with white like grey ; if the As be of a mingled brown, black and white mixt with brown-oker, shaded with black in the mouth ; heighten with white.

XVI. The Leopard with brown-oker and red-oker mixt with black, shadow it with foot, the spots with red-oker and black, the mouth with black and white : heighten him with light Oker.

XVII. Horses, Dogs, Oxen and such like, if white, with white mixt with a little foot, or Oker, shaded with a black and white, and heightened with perfect white.

XVIII. If

XVII. If of a Chestnut-brown, with red-oker and black, shaded with black and foot, and heightned with red-oker and white.

XIX. If an Ash grey, with black mixt with white, shaded with black, and heightned with white.

XX. If black, with a thin black, shaded with a stronger black, and heightned with black and white.

XXI. A bay Horse with Vermilion and brown-oker; or only with red-chalk, shaded with red-oker, and heightned with red-chalk mixt with white.

XXII. If spotted, by mixture of the aforesaid colours, and discreetly putting every one in its proper apartment or place.

CHAP. XLVIII.

Of the Limning of Serpents.

I. **T**HE Serpents on the back with Bice, and downwards towards the belly with a pale black, the back speckled with black; the belly shaded with red, sprinkled also with black specks.

II. The Adder with red-lead, Vermilion and saffron, with blew in the back, and on the belly below Masticot and white, speckled all over with black spots.

III. The Crocodile with a dark thin green, from the back down-wards to the belly; below the belly with Masticot, so that the yellow and green may melt, or vanish away into one another; shadow him with Indico and smalt, and heighten the belly with Masticot and white: the mouth before and within redish,

the

Chap. 49. *Limning Waters and Fish.* 133

the scales black, the claws of blackish green, the nails wholly black.

IV. The Frog with a fair green, speckled with black, and towards the belly with green mixt with Masticot, sweetned with green speckled: the eyes with Saffron, and black round them, the back heightened with Saffron.

C H A P. X L I X.

Of Limning Waters and Fish.

I. **W**ater at a distance with white and Indico, shaded with Indico mixt with Bice, and heightened with white: if near the Horizon much like the Sky.

II. Waters near lay with stronger Indico, heighten and shadow with the same mixt with Bice: lastly heighten with pure white.

III. Waters nearer with stronger Indico, shaded and heightened as before.

IV. Waters in fields overgrown, with Pink and the like; always imitating Nature.

V. Fish in green Waters, with Indico mixt with French-berry-yellow, shaded with a thin Indian blew, and heightened with pure white.

But Fishes ought also to be done according to their Nature and Colour, for some are yellow, some brown, some speckled, some grised, some black, &c. in all which to conserve in Figure the true Idea, you ought to take directions only by the life.

Horat.

Horat. Epod. 16.

Vos, quibus est virtus, muliebrem tollite luctum,
 Etrusca præter & volate littora.
 Nos manet Oceanus circumvagus; arva, beata
 Petamus arva, divites & insulas:
 Reddit ubi Cererem tellus inarata quotannis,
 Et imputata floret usquè vinea.
 Germinet & nunquam fallentis termes olivæ,
 Suamque pulla ficus ornat arborem.
 Illis injussæ veniunt ad mulctra capellæ;
 Refertque tenta grex amicus ubera.
 Nec Vespertinus circumgemit ursus ovile;
 Nec intumescit alta viperis humus:
 Pluræque felices mirabimur: ut neque largis
 Aquosus Eurus arva radat imbribus,
 Plingua nec siccis urantur semina glebis:
 Utrumque rege temperante Cœlitum.
 Non huc Argoo contendit remige pinus,
 Neque impudica Colchis intulit pedem
 Non huc Sidonii torserunt cornua nautæ,
 Laboriosa nec cohors Ulyssæi.
 Nulla nocent pecori contagia, nullius astri
 Gregem æstuosa torret impotentia.
 Jupiter illa piæ secrevit littora genti,
 Ut inquinavit ære tempus aureum.

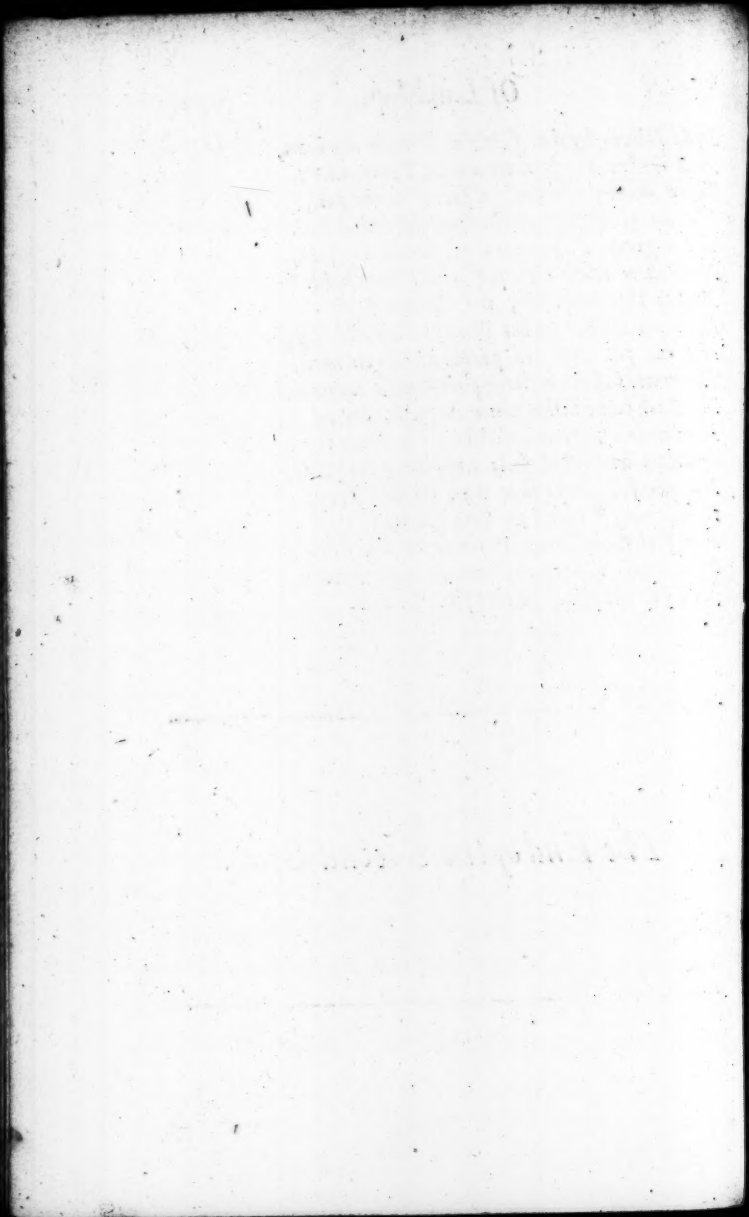
*Too nobler spirits, hence with womens tears,
 Sail from Etruscan confines free from fears:
 The Earth-encirc'ling Ocean us invites,
 Rich Islands, Fields, Fields blest with all delights.
 Where Lands untill'd are yearly fruitful seen,
 And the unpruned Vine perpetual green.*

Still,

Of Landskip.

Still, Olives by the faithful branch are born,
And mellow Figgs their native Trees adorn.
There milchy Goats come freely to the pail,
Nor do glad flocks with dugs distended fail.
The nightly Bear roars not about the fold,
Nor hollow earth doth poisonous Vipers hold.
Add to this happiness, the humid East
Doth not with frequent showers the Fields infest.
Nor the fat seeds are parcht in barren land,
The powers above both temp'ring with command.
No Bark came hither with Argoan oar,
Nor landed wanton Colchis on this shoar:
Cadmus with filled sails turn'd not this way,
Nor painful troops that with Ulysses stray.
Here amongst cattel no Contagions are,
Nor feel flocks droughtry power of any star.
When brass did on the Golden Age intrude,
Jove for the pious did this place seclude.

The End of the Second Book.



LIB. I. Topographical 847

POLYGRAPHICES

LIBER TERTIUS.

Of Painting, Washing, Colouring, Dying, Varnishing, and Gilding.

Containing the Description and Use of all the chief Instruments and Materials, and the way and manner of working.

The Dying of Cloath, Silks, Horns, Bones, Woods, Glafs, Stones, and Metals: Together with the Gilding and Varnishing thereof, according to any purpose or intent.

CHAP. I.

Of Painting in General.

I. **T**HE Art of *Painting* (which is the imitation of Nature) consists in three things, to wit, *Design, Proportion, and Colour*: all which are exprest in three sorts of *Painting*, viz. *Landskip, History, and Life.*

K

II. *Land.*

II. *Landſhip* or *Perspective*, wonderfully respects freedom and liberty, to draw even what you please. *History* respects proportion and figure : *Life*, respects colour : In each of which there is a neceſſary dependency of all the other.

III. The work of the Painter is to expreſs the exact imitation of natural things ; wherein you are to obſerve the excellencies and beauties of the piece, but to reſuſe its vices.

For a piece of Painting may in ſome part want Diligence, Boldneſs, Subtilty, Grace, Magnificence, &c. while it is ſufficiently in other parts excellent ; and therefore you are not ſo much to imitate Ornaments, as to expreſs the inward power and ſtrength.

IV. In *Imitation*, always be ſure to follow the examples and patterns of the beſt maſters ; leſt evil precedents beget in you an evil habit.

V. The force of *Imitation* reſides in the fancy or imagination, where we conceive (what we have ſeen) the form or *Idea* of that, or thoſe things which we would repreſent in lines and colours.

VI. This *Fancy* or *Imagination* is ſtrengthened, by lodging therein all variety of viſible rarities ; as 1. Forms made by light and darkneſs ; ſuch as are to be ſeen in Summer in the clouds, near Sun-ſetting (which vaniſh before they can be imitated :) 2. Forms made by proximity or diſtance of place, ſuch as are Trees, Woods, Buildings, appearing perfect being near, or confuſed in their parts being far off: 3. Forms of dreams, of which (whether ſleeping or waking) the fancy muſt be fully poſſeſt.

VII. Where *Deſign* is required ; you muſt fancy every circumſtance of the matter in hand, that in an inſtant, with a nimble had, you may depiſt the ſame with livelineſs and grace.

Slow

Chap. 1. Of Painting in General. 139

Slow performance causes a perturbation in the fancy, cooling of the mind, and destruction of that passion which should carry the work on: but quickness and diligence brings forth things even excellent indeed: Care, Industry and Exercise are the props, supporters and upholders of Art.

VIII. Be sure you dwell not too long upon designing: alter not what is well, lest for want of exquisite judgment you make it worse: and if in designing, you want that ability to follow the quickness of fancy, submit to a willing negligence; a careless operation adds sometimes such a singular grace, as by too much curiosity would have been totally lost; then by reviewing what is done, *make a regular connexion of all the Ideas conceived in your mind.*

IX. With *Apelles* amend those things which others justly find fault with; the reprehensions of an Artist are as demonstrative rules of experience; and weigh every ones opinion for the advancement of Art.

X. Lastly, be sure your piece be of a good *Design, History or Life*; that the parts be well *disposed*, the Characters of Persons, *proper*; the Form *magnificent*; the colour *lively*, and the Spirit *bold*: that it may appear to be the work of a nimble fancy, ready memory, clear judgment, and large experience.

CHAP. II.

Of Painting in Oyl, and the Materials thereof.

I. **P**ainting in Oyl is nothing but the work or Art of Limning performed with colours made up or mixed with Oyl.

II. The Materials of Painting are chiefly Seven, 1. *The Easel.* 2. *The Pallet.* 3. *The Straining Frame.* 4. *The Primed cloath.* 5. *Pencils.* 6. *The Stay.* 7. *Colours.*

III. *The Easel* is a Frame made of wood (much like a Ladder) with sides flat, and full of holes, to put in two pins to set your work upon higher or lower at pleasure; something broader at bottom than at the top: on the backside whereof is a stay, by which you may set the *Easel* more upright or sloping.

IV. *The Pallet* is a thin piece of wood, (Pear-tree or Walnut) a foot long, and about ten inches broad, almost like an Egg, at the narrowest end of which is made an hole to put in the thumb of the left hand, near to which is cut a notch, that so you may hold the *Pallet* in your hand. Its use is to hold and temper the Colours upon.

V. *The Straining Frame* is made of wood, to which with nails is fastned the *Primed cloath*, which is to be Painted upon.

These ought to be of several sizes according to the bigness of the cloath.

VI. *The Primed cloath* is that which is to be Painted upon: and is thus prepared.

Take

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Take good Canvas and smooth it over with a slick stone, size it over with size, and a little honey, and let it dry; then white it over once with whitening and size mixed with a little honey, so is the cloath prepared, on which you may draw the Picture with a coal; and lastly lay on the Colours.

Where note, honey keeps it from cracking, peeling or breaking out.

VII. Pencils are of all bignesses, from a pin to the bigness of a finger, called by several names, as Ducks-quill fished and pointed; Goose-quill fished and pointed; Swans-quill fished and pointed; Jewelling pencils, and bristle pencils: some in quills, some in Tin cases, and some in sticks.

VIII. The Stay or Molstick, is a Brazill stick (or the like) of a yard long; having at the one end thereof, a little ball of Cotten, fixed hard in a piece of Leather, of the bigness of a Chestnut; which when you are at work you must hold in your left hand; and laying the end which hath the Leather ball upon the cloath or Frame, you may rest your right arm upon it, whilst you are at work.

IX. The Colours are in number seven (as *supra*) to wit, White, Black, Red, Green, Yellow, Blew, and Brown.

Of which some may be tempered on the Palette at first, some must be ground, and then tempered; and other some must be burnt, ground, and lastly tempered.

X. To make the Size for the Primed cloath at the sixth Section of this Chapter.

Take Glem, and boil it well in fair water, till it be dissolved, and it is done.

XI. To make the Whitening for the sixth Section of this Chapter.

Take of the aforesaid Size, mix it with whitening
K 3 ground,

ground, and so white your boards or cloath (being made smooth) dry them, and white them a second or third time; lastly, scrape them smooth, and draw it over with White-lead tempered with Oyl.

XII. To keep the Colours from skinning.

Oyl Colours (if not presently used) will have a skin grow over them, to prevent which put them into a glass, and put the glass three or four inches under water, so will they neither skin nor dry.

XIII. To cleanse the Grinding stone and Pencils.

If the Grinding stone be foul, grind Curriers shavings upon it, and then crumbs of bread, so will the filth come off: if the pencils be foul, dip the ends of them in oyl of Turpentine, and squeeze them between your fingers, and they will be very clean.

CHAP. III.

Of the Colours in General, and their significations.

I, **T**HE chief Whites for Painting in Oyl are, White-lead, Ceruse and Spodium.

II, The chief Blacks are Lamp-black, Seacoal-black, Ivory-black, Charcoal, and earth of Colen.

III. The chief Reds are, Vermilion, Sinaper Lake, Red-lead, Indian Red, Ornotto.

IV. The chief Greens are, Verdegriese, Terra-vert, Verdiger.

V. The chief Yellows are, Pink, Masticot, English Oker, Spruce Oker, Orpiment.

VI, The chief Blews are, Blew Bice, Indico, Ultramarine, Smalt.

VII. The

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VII. The chief *Browns* are Spanish-brown, burnt Spruce, Umber.

VIII. These Colours, Lamp-black, Verditer, Vermilion, Bice, Smalt, Masticot, Orpiment, Ultramarine, are not to be ground at all, but only tempered with oyl upon the Pallet.

IX. These Colours, Ivory, Ceruse, Oker and Umber are to be burnt, and then ground with oyl.

X. All the rest are to be ground upon the Grinding stone with Linseed oyl (except White-lead, when it is to be used for Linnen, which then is to be ground with oyl of Walnuts, for Linseed oyl will make it turn yellow.

And now since we are engaged to treat of colours, it may neither be unnecessary, nor unuseful for the young Artist to know their natural significations; which take us followeth.

XI. *Blew* signifieth truth, faith, and continued affections; *Azure*, Constancy; *Violet*, a religious mind.

XII. *Orange-tawny* signifies Pride, also integrity; *Tawny* forsaken, *Limmon*, jealousy.

XIII. *Green* signifies hopes: *Grass-green*, youth, youthfulness, and rejoycing: *Sea-green*, Inconstancy.

XIV. *Red* signifies Justice, Vertue and Defence: *Flame-Colour*, Beauty and desire: *Maidens-blush*, Envy.

XV. *Yellow* signifies Jealousie: perfect yellow, Joy, Honour, and greatness of Spirit: *Gold-colour*, Avarice.

XVI. *Flesh-colour* signifieth Lasciviousness: *Carnation*, Craft, Subtily and Deceit: *Purple*, Fortitude and Strength.

XVII. *Willow-colour* signifieth forsaken: *Popping-jay green*, Wantonness: *Peach-colour*, Love.

XVIII. *White* signifieth Death: *Milk-white*, Innocency, Purity, Truth, Integrity: *Black*, Wisdom, Sobriety, and Mourning,

XIX. *Straw-colour* signifieth Plenty: *Rust of Iron*, Witheredness: *Ermise*, Religion and Holiness.

XX. *The White, Black, Red, and green* are colours held sacred in the Church of Rome: *White* is worn in the Festivals of Virgins, Saints, Confessors and Angels, to shew their Innocency: *Red* in the Solemnities of the Apostles and Martyrs of Jesus: *Black* in Lent and other Fasting dayes: *Green* is worn between the *Epiphany* and *Septuagesima*: and between *Pentecost* and *Advent*.

CHAP. IV.

Of the fitting of Colours for Painting.

I. **U**PON the Pallet dispose the several colours, at a convenient distance, that they may not intermix: first lay on the Vermillion, then the Lake, then the burnt Oker, then the Indian Red, Pink, Umber, Black and Smalt, each in their order, and lay the White next to your thumb, because it is oftenest used, for with it all shadows are to be lightned; and next the White a stiff sort of Lake; thus is the Pallet furnished with single colours for a face.

Now to temper them for shadowing various complexions do thus:

II. For a fair complexion.

Take White one drachm, Vermillion, Lake of each two dreachms, temper them, and lay them aside for the deepest Carnation of the face: to part of the aforesaid mixture put a little more white, for a light Carnation; and to part of that put more white (which temper on the Pallet) for the lightest colour of the face.

III. The

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III. The faint shadows for the fair complexion.

Take Smalt, and a little white, for the eyes; to part of that add a little Pink, and temper by it self for faint greenish shadows in the face.

IV. The deep shadows for the same.

The Sinaper Lake, Pink, and black of each, which temper together; if the shadows ought to be redder than what is tempered, add more Lake; if yellower, add more Pink; if browner or grayer, add more black: thus shall the Pallet be furnished with colours.

V. For a brown or swarthy complexion.

The single colours being laid on the Pallet as before, and tempered; to the white, Lake and Vermilion, put a little burnt Oker for a Tawny; and for heightening add some Yellow Oker, so much as may just change the colours. The faint and deep shadows are the same at the third and fourth Section of this Chapter.

VI. For a Tawny complexion.

The colours are the same with the former, but the shadows are different; which must be made of burnt Oker and Umber, (which will fit well:) if the shadow be not yellow enough, add a little Pink to it.

VII. For a black complexion.

The dark shadows are the same with the former: but for heightening take White, Black, Lake, and burnt Oker; in tempering of which put in the white by degrees, till you come to the lightest of all. Where note that the single colours at first laid upon the Pallet and tempered, serve for shadows for all complexions; and that all deepnings ought to be with black, Lake and Pink tempered together.

CHAP.

C H A P. V.

Of Colours for Velvet.

I. **F**OR *black Velvet*. Take Lamp-black and Verdegriese for the first ground; that being dry, take Ivory-black, and Verdegriese, shadow it with White-lead mixt with Lamp-black.

II. *For Green*. Take Lamp-black and White-lead, and work it like a Russet Velvet, and let it dry; then draw it over with Verdegriese tempered with a little Pink.

III. *For Sea-green*. Take only Verdegriese and lay it over Russet: If a *Grass-green*, put a little Masticot to it; shadow these greens with Russet, which lay according to the deepness of the green.

IV. *For Red*. Take Vermilion, and shadow it with Spanish-brown; and where you would have it darkest, shadow with Seacoal-black and Spanish-brown with the aforesaid colours, dry it, and then gloss it over with Lake.

V. *For Crimson or Carnation*. Take Vermilion, to which add White-lead at pleasure.

VI. *For Blew*. Take Smalt tempered alone.

VII. *For Yellow*. Take Masticot and yellow Oker, and where you would have it darkest, shadow it with Umber.

VIII. *For Tawny*. Take Spanish-brown, White-lead, and Lamp-black, with a little Verdegriese, to shadow where need is: when dry, gloss it over with Lake and a little Red-lead.

IX. *For hair colour*. Take Umber ground alone ;
and

and where it should be brightest, mix some White-lead about the folds, lighten or darken with White-lead and Umber.

X. *For Ash-colour.* Take Charcoal, black and White-lead; lighten with white-lead: *a colour like Russet will be an Ash colour.* k

XI. *For Purple.* Take Smalt and Lake, of each alike, temper them (light or deep as you please) with white-lead.

XII. *Lastly note,* that in Painting Velvet you must at first work it somewhat sad, and then give it a sudden brightness.

CHAP. VI.

Of Colours for Sattins.

I. **F**OR Black. Take Lamp-black ground with Oyl and tempered with white-lead; and where you would have it shine most, mix Lake with the white-lead.

II. *For Green.* Take Verdegriese ground alone and mixed with white-lead; adding Pink where you would have it brightest: to the deepest shadows add more Verdegriese.

III. *For Yellow.* Take Masticot, yellow Oker and Umber (ground each by themselves) where it should be brightest use Masticot alone; where a light shadow, use Oker, where darkest use Umber.

IV. *For Purple.* Take Smalt alone, and where it should be brightest use white-lead.

V. *For Red.* Take Spanish-brown (ground alone) mix it with Vermilion, and where it should be brightest mix white-lead with the Vermilion.

VI. *For*

VI. *For White.* Take White-lead (ground alone) and Ivory-black, which temper light or dark.

VII. *For blew.* Temper Smalt and White-lead; where it should be faddest, use Smalt; where lightest, White-lead.

VIII. *For Orange colour.* Take Red-lead and Lake; where brightest, Red lead, where faddest, Lake.

IX. *For Hair colour.* Temper Umber and white-lead; where it should be brightest, put more White-lead, and where the greatest shadow, use Seacoal-black mixed with Umber.

CHAP. VII.

Of Colours for Taffaty, Cloth and Leather.

I. **T**affaties are Painted much as Satins, thus; Take such colours as are fit for the purpose, and lay them one by another upon the work, and shadow them with others.

II. *Cloth* is the same work with Satin, save, you must not give to Cloth so sudden a shining gloss.

III. *Cloth of Gold* is made of brown Oker and liquid Gold; water and heighten upon the same with small gold stroaks.

IV. *For Buff*, mix yellow Oker and White-lead; and where it should be dark by degrees, mix it with a little Umber; when you have done, size it over with Umber and Seacoal-black.

V. *For yellow Leather*, take Masticot and yellow Oker, shadow it with Umber.

VI. *For black Leather*, take Lamp-Black, and shadow it with White-lead.

VII. *For*

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VII. *For White Lead.* take White-lead, and shadow it with Ivory-black.

C H A P. VIII.

Of Colours for Garments in general.

I. **F**OR Black. Let the dead colour be Lamp-black and Verdigrise: being dry, go over with Ivory-black and Verdigrise; but before the second going over, heighten it with white.

II. *For Hair colour.* Take Umber and White for the ground; Umber and black for the deeper shadows; Umber and English Oker for the meaner shadows; white and English Oker for heightening.

III. *For Blue.* Take Indico and White: first lay the White, then the Indico and White mixed; then deepen it with Indico, and when dry, glaze it with Ultramarine which will never fade.

Smalt will turn black, and Bice will turn green.

IV. *For Purple.* Take Smalt tempered with Lake and White-lead; then heighten with White-lead.

V. *For a sad Red.* Take Indian Red heightened with White.

VI. *For a light Red.* Take Vermilion, glaze it over with Lake, and heighten it with White.

VII. *For a Scarlet.* Take Vermilion and deepen it with Lake, or Indian Red.

VIII. *For Green.* Take Bice and Pink, heighten it with Masticot, and deepen with Indico and Pink.

IX. *For yellow.* Take Masticot, yellow Oker, Umber; lay Masticot and white in the lightest places; Oker and White in the mean places, and Umber in the darkest, glaze it with Pink.

X. *For*

X. *For Orange colour.* Lay the lightest parts with Red-lead and white, the mean parts with Red-lead alone; the deeper parts with Lake, and if need is, heighten it with white.

XI. *For a sad Green.* Mix Indico with Pink: for a light Green mix Pink and Masticot: for a Grass-green mix Verdegriese and Pink.

XII. Remember always to lay yellows, blews, reds and greens, upon a white ground, for that only giveth them life.

CHAP. IX.

Colours for Metals and precious Stones.

I. **F**OR Iron. Take Lamp-black and White-lead; if you would have it rusty, take Seacoal-black, and mix it with a little white.

II. *For Silver.* Take Charcoal-black and White-lead; where you would have it darkest, use more Charcoal: work Silver somewhat rustish, and give it a sudden gloss with White-lead only.

III. *For Gold.* Take Lake, Umber, Red-lead, Masticot; lay the ground with Red-lead, and a little dry Pink: where you would have it darkest, shadow it most with Umber, where lightest with Masticot.

Note, in grinding Red-lead for the Gold size, put in a little Verdegriese to make it dry sooner.

IV. *For Pearls.* Temper Charcoal-black with white-lead, till it be a perfect russet; then make the Pearl with it, and give it a speck of White-lead only to make it shine.

Where note, that Ceruse tempered with Oyl of white Poppy is excellent to heighten up Pearls.

V. For

V. *For precious Stones.* For Rubies, &c. lay their counterfeit grounds with transparent colours; and Lake, Verdegriese and Verditer give them a shining colour.

C H A P. X.

Of Colours for Landskip.

I. **F**OR a light Green, use Pink and Masticot heightned with white: for a sad Green, Indico and Pink heightned with Masticot.

II. *For some Trees,* take Lake, Umber and White, for others Charcoal and white, for others Umber, black and white, with some green; adding sometimes Lake or Vermilion, with other colours.

III. *For Wood,* take Lake, Umber and white, mixing sometimes a little green withal.

IV. *For Fire,* lay Red-lead and Vermilion tempered together where it is reddest: where it is blew, lay oyl, Smalt, and white-lead: where it is yellow, take Masticot, and work it over in certain places; where you would have it shine most, with Vermilion.

V. *For an Azure Skie,* which seems a far off, take Oyl, Smalt, or Bice, and temper them with Linseed-oyl. But grind them not: for Smalt or Bice utterly lose their colour in grinding.

VI. *For a Red Skie,* take Lake and white; and for Sun-beams, or yellow clouds at Sun-rising or setting, take Masticot and white.

VII. *For a Night Skie,* or clouds in a storm, take Indico deepned with black, and heightned with white.

VIII. *For Wood colours,* they are compounded either

of

of Umber and white, Charcoal and white, Seacoal and white, Umber black and white; or with some green added: to which you may adjoin sometimes, as in barks of Trees, a little Lake or Vermillion.

IX. *Lastly for the practical performing of the work* have recourse to the rules delivered in *chap. 13. lib. 1.* and *chap. 27. lib. 2.*

CHAP. XI.

Of the Painting of the Face.

I. **H**AVE your necessary pencils in readinels, as two pencils ducks quill fitched; and two ducks quill pointed; two Goose quill fitched, and two pointed: two bristles both alike; one Swans quill fitched, and one pointed; one larger pencil in a Tin case fitched; and a bristle of the same Bignels, every one having a stick of a bout nine inches long put into the quill thereof, the farther end of which stick must be cut to a point.

II. The pencils in a readinels in your left hand, with the *pallet* upon your thumb, prepared with fit colours, and your *malsick* to rest upon; you must work according to the directions following.

III. The cloth being pinned, and strained upon the Frame, take a knife, and with the edge thereof scrape over the cloth, lest knots or the like should trouble it.

IV. Then set the Frame and cloth upon the *Basel*, at a convenient heighth, that sitting on a stool (even with the party you draw) you may have the face of the Picture equal, or something higher than your own:

own : set the Easel to the light (as in Limning we have taught) letting it come in upon your left hand, casting the light towards the right.

V. Let the Person to be drawn, sit before you in the posture he intends to be painted in, about two yards distant from you.

VI. Then with a piece of painted chalk draw the proportion of the face upon the cloth, with the place of the eyes, nose, mouth, ears, hair, and other postures.

Here is no difficulty in this, if you miss much, the colours will bring all to rights again.

VII. Then take a pencil Swans quill pointed, and begin to paint some of the lightest parts of the face with the lightest colour, (as the heightning of the fore-head, nose, cheek-bone of the lightest side :) the mean parts next (as the cheek-bone of the dark-side, chin, and over the upper lip :) proceeding gradually till you come to the reddest parts of all.

VIII. Lay faint greenish shadows in convenient places, and where it is necessary to soften harsher shadows, but take heed of putting green where red should be.

IX. The faint or light parts thus done, take one of the Goose quill pointed, or Ducks quill fitched, and begin at the eyes to shadow with Lake, going over the nose, mouth, compass of the ear, &c. before you lay on any colour, wiping it lightly over with a linen rag, to prevent the overcoming of the other colours.

X. The colours both light and dark being put in, take a great fitch pencil; and sweeten the colours therewith, by going over the shadows with a clean soft pencil, which being well handled will drive and intermix the colours one into another, that they will look as if they were all laid on at once, and not at divers times.

Where note, that the bigger pencils you use, the sweeter and better your work will lie.

XI. *At the second sitting*, begin again with clean pencils, of such bigness as the work requires, and observe well the person, and see what defects you find in your work at first sitting, and amend them; then heighten or deepen the shadows as occasion requires.

XII. *Lastly*, take a Goose quill bristle, and put in the hair about the face (if there must be any) and rub in the greater hair, with the greater bristle, heightning it up with the Goose quill pencil.

CHAP. XII.

Of the cleansing of any old Painting.

I TAKE good wood ashes, and searce them, or else some Smalt or powder-blew, and with a Spunge and fair water gently wash the Picture you would cleanse (taking great care of the shadows) which done, dry it very well with a clean cloth.

II. Then varnish it over again with some good varnish, but such as may be washed off again with water if need be.

We shall hereafter shew the way of making varnish of several sorts, mean season this following may serve.

III. Take either common varnish (made with Gum sandrack dissolved in Linseed-oyl by boiling) or glair of Eggs, and with your pencil go over the Picture once, twice, or more therewith as need requires.

CHAP. XIII.

Of a Picture in general.

I. **I**N every Picture there are always four principal considerations: to wit, 1. *Invention*. 2. *Proportion*. 3. *Colour*. and 4. *Life*.

II. *Invention* must be free, and flow from a general knowledge of Antiquities, History, Poetical Fictions, Geometrical conclusions, and Optical considerations, according to its Situation or Aspect, either near or far off.

III. And this *Invention* must express proper and fit things, agreeing to the Circumstances of *Time*, *Place*, *Matter*, and *Person*; and having respect to the modes of habits belonging to the Country or People whether *Antient* or *Modern*.

IV. *Proportion*, *Analogy*, or *Symmetry* (which you please) is that which limits each part to its proper bigness, in respect to the whole.

Whatsoever differs from this recedes from beauty, and may be called Deformity.

V. This *Proportion* is called by Artists the designing lines; which are first drawn before the whole is painted.

These proportions or lineal designs, draughts, and scotches, may be called Picture, which being well done, shew not only the shape, but also the intent: In lines only, we may draw the proportion of a Black-Moor, and such as shall be like him: Now this skill proceeds from the very highest principles of Art.

IV. *Colour* is that which makes the Picture resem-

ble what we desire to imitate; by mixing of various colours together.

VII. In making any thing apparent, it is necessary to express its opposite or contrary.

So light and shadows forward, set forth Paintings outwards, as if you might take hold of them with your hand: blackness makes things seem farther off, and is used in things hollow, as Caves, Wells, &c. the more deep the more black.

VIII. Brightness exceeds light sparkling in splendor.

It is used in the Glory of Angels; twinkling of Gems, Armory, Gold and Silver vessels, fires and flames.

IX. In Painting of a man, grace each limb with its proper and lively colour; the black make sincerely black; the white pure, with redness intermixt. But to paint purely the exquisite beauty of a woman, is never to be well done (except it be by a very ingenious Artist indeed) her rare complexion being scarcely possible to be imitated with colours: *There is none really knows the exact mixture for such a Countenance.*

X. Life or Motion is that from whence action or passion doth result, which in coloured Pictures is seen with a lively force of Gesture and spirit.

To do this it is necessary that the Artist be well acquainted with the nature, manners, and behaviour of men and women, as in anger, sadness, joy, earnestness, idleness, love, envy, fear, hope, despair, &c. Every disturbance of the mind alters the Countenance into several postures.

XI. The head cast down shews humility; cast back, arrogancy or scorn; hanging on the neck, languishing; stiff and sturdy, morosity of mind: the various postures of the head shew the passions; the Countenance the same; the eyes the like: and in a word, all the other parts of the body contribute something to the ex-

expression of the said passions of the mind, as is easily to be observed in the life.

In excellent pieces you may at a view read the mind of the Artist in the formality of the Story.

XII. Lastly, Be alway sure first to conceive that in your thoughts, which you would express in your work; that your endeavours being assisted by an intellectual energy, or power of operation, may at length render your productions perfect.

C H A P. XIV.

Of the Choice of Copies, or Patterns.

I. **H**E that chuseth a Pattern, ought to see 1. that it be well designed: 2. that it be well coloured.

II. In the well designing, be sure that it be true in every part; and that the proportion of the figure be just and correspond to the life.

III. If the Picture be a fiction, see that it be done boldly, not only to exceed the work (but also the possibility) of nature, as in *Centaurs, Satyrs, Syrens, Flying-horses, Sea-horses, Tritons, Nereides, &c.*

Alexander ab Alexandria saith that Theodore Gaza caught one of these Nereides in Greece, and that in Zealand, another was taught to spin: these Tritons and Nereides are those which are called *Mare-maids, the Male and the Female.*

IV. Natural figures shew property, and are required to agree with the life: forced figures express novelty, and are to be beautified by exorbitancies according to the fancy of the Painter without limitation:

novelty causes admiration, and admiration curiosity, a kind of delight and satisfaction to the mind.

These things are not the products of stupid brains, nor are they contained within the perimetre of clouded and dull Conceptions.

V. In the well colouring, know that in obscurity or darkness there is a kind of deepness; the sight being sweetly deceived *gradatim* in breaking the Colours, by insensible change from the more high to the more dull.

In the Rain-bow this mixture is perfect; the variety of Colours are thoroughly dispers'd (like Atoms in the Sun-beams) among one another, to create its just appearance.

VI. See that the swellings of the work agree with the exactness of nature, and as the parts thereof require, without sharpness in out-lines, or flatness within the body of the piece; as also that each hollowness exactly correspond in due proportions.

VII. Lastly, View precisely the passions, as Joy, Sorrow, Love, Hatred, Fear, Hope, &c. and see that they correspond with their proper postures; for a touch of the pencil may strangely alter a passion to its just opposite or contrary, as from Mirth to Mourning, &c.

C H A P. X V.

*Of the Disposing of Pictures and
Paintings.*

L **A** *Nisque* works, or *Grotesco*, may become a wall, the borders and freezes of other works ; but if there be any draughts in figures of men and women to the life upon the wall, they will be best of black and white, or of one colour heightened : if they be naked, let them be as large as the place will afford ; if of Marbles, Columns, Aquæducts, Arches, Ruines, Cataracts, let them be bold, high, and of large proportion.

II. Let the best pieces be placed to be seen with single lights, for so the shadows fall natural, being always fitted to answer one light ; and the more under or below the light the better, especially in mens faces and large pieces.

III. Let the *Porch* or entrance into the house, be set out with *Rustick* figures, and things rural.

IV. Let the *Hall* be adorned with Shepherds, Peasants, Milk-maids, Neat-herds, Flocks of Sheep and the like, in their respective places and proper attendants ; as also Fowls, Fish, and the like.

V. Let the *Stair-case* be set off with some admirable monument or building, either new or ruinous, to be seen and observed at a view passing up : and let the *Ceiling* over the top-stair be put with figures foreshortened looking downwards out of Clouds, with Garlands and Cornucopia's.

VI. Let *Landskips*, Hunting, Fishing, Fowling, Histories and Antiquities be put in the *Great Chamber*.

VII. In the *Dining-room* let be placed the Pictures of the King and Queen; or their Coat of Arms; forbearing to put any other Pictures of the life, as not being worthy to be their Companions; unless at the lower end, two or three of the chief Nobility, as attendants of their Royal Persons: for want hereof you may put in place, some few of the nearest blood.

VIII. In the *inward or with-drawing Chambers*, put other draughts of the life, of Persons of Honour, intimate or special friends, and acquaintance, or of Artists only.

IX. In *Banqueting-rooms*, put cheerful and merry Paintings, as of *Bacchus*, *Centaures*, *Satyrs*, *Syrens*, and the like, but forbearing all obscene Pictures.

X. Histories, grave Stories, and the best works become *Galleries*; where any one may walk, and exercise their senses, in viewing, examining, delighting, judging and censuring.

XI. In *Summer-houses* and *Stone-walks*, put Castles, Churches or some fair building: In *Terraces*, put Boscage, and wild works. Upon *Chimney-pieces*, put only Landskips, for they chiefly adorn.

XII. And in the *Bed-chamber*, put your own, your Wives and Childrens Pictures; as only becoming the most private Room, and your Modesty: lest (if your Wife be a beauty) some wanton and libidinous guest should gaze too long on them, and commend the work for her sake.

XIII. In hanging of your pictures; if they hang high above reach, let them bend somewhat forward at the top; because otherwise it is observed that the visual beams of the Eye, extending to the top of the Picture, appear further off, than those at the foot.

C H A P. XVI.

Of Frescoe, or Painting of walls.

I. **I**N Painting upon Walls, to make it endure the weather, you must grind your colours with Lime water, Milk, or Whey, mixt in size colour in pots.

II. The paste or plaister must be made of well wash'd Lime, mixt with fine powder of old rubbish stones : the Lime must be so often wash'd, till all its salt is abstracted ; and all your work must be done in clear and dry weather.

III. To make the work endure, strike into the wall stumps of headed nails, about five or six inches asunder, and by this means you may preserve the plaister from peeling.

IV. Then with this paste, plaister the wall, a pretty thickness, letting it dry : being dry, plaister it over again about the thickness of half a Barley corn, very fine and smooth, then your colours being ready prepared work this last plaistering over, whilest it is wet, so will your Painting unite and joyn fast to the plaister, and dry together as a perfect compost.

V. In Painting be nimble and free, let your work be bold and strong, but be sure to be exact, for there can be no alteration after the first painting ; and therefore heighten your paint enough at first, you may deepen at pleasure,

VI. All earthy colours are best, as the Okers, Spanish-white, Spanish-brown, Terræ-vert, and the like, mineral colours are naught.

VII. Lastly, let your pencils and brushes be long and soft, otherwise your work will not be smooth ; let
your

your colours be full, and flow freely from the pencil or brush; and let your design be perfect at first, for in this, there is no after alteration to be made.

CHAP. XVII.

Of Colours for Painting Glass.

I. **Y**ellow. Take a very thin piece of pure fine Silver, and dip it into melted Brimstone; take it out with a pair of plyers, and light it in the fire, holding it till it leaves burning; then beat it to powder in a brasen mortar; then grind it with Gum-Arabick water, and a little yellow Oker.

II. *Yellow.* Take fine Silver one Drachm, Antimony in powder two Drachms, put them in a hot fire, in a Crucible for half an hour, and then cast it into a Brass mortar, and beat it into powder, to which add yellow Oker six Drchams, old earth of rusty Iron seven Drachms, grind all well together.

This is fairer than the former.

III. *White.* This is the colour of the glass it self: you may diaper upon it with other glass or Crystal ground to powder.

IV. *Black.* Take Jet and Scales of Iron, and with a wet feather take up the Scales that fly from the Iron, after the Smith hath taken his heat, grind them with Gum-water.

V. *Black.* Take Iron scales, Copper scales, of each one Drachm, heat them red hot in a clean fire shovel; then take Jet half a Drachm, first grind them small and temper them with Gum-water.

VI. *Red.*

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VI. *Red.* Take *Sanguis Draconis* in powder, put to it rectified spirit of Wine; cover it close a little while; and it will grow tender; wring it out into a pot, that the dross may remain in the cloth; the clear preserve for use. This is a fair red.

VII. *Carnation.* Take Tin-Glass one ounce, Jet three ounces, Red-oker five ounces, gum two drachms, grind them together. It is a fair Carnation.

VIII. *Carnation.* Take Jet four drachms, Tin-glass or Litharge of Silver two drachms; gum and scales of Iron of each one drachm, red chalk one ounce, grind them.

IX. *Green.* Take Verdegriese and grind it well with Turpentine, and put it into a pot; warming it at the fire when you use it.

X. *Blew.* Provide the clearest leads you can get of that colour, beat them to powder in a brazen mortar; take Goldsmiths Amel of the same colour, clear and transparent, grind each by it self, take two parts of Lead, and one of Amel, grind them together as you did the Silver. *The same understand of Red and Green.*

CHAP. XVIII.

Of the way of Painting upon Glass.

I. **T**Here are two manner of ways of painting upon glass; the one is for oyl colour, the other for such colours as are afterwards to be annealed or burnt on.

II. To lay oyl colours upon glass, you must first grind them with gum-water once, and afterwards temper it with Spanish Turpentine, lay it on and let it dry by the fire, and it is finished.

III. To

III. To anneal or burn your glass, to make the colours abide, you must make a four square brick Furnace, eighteen inches broad and deep; lay five or six cross Iron bars on the top of it, and raise the Furnace eighteen inches above the bars: then laying a plate of Iron over the bars, sift (through a sieve) a lay of slack'd Lime over the plate, upon which lay a row of glass, upon that a bed of Lime, and upon that Lime, another row of glass; thus continue *stratum super stratum*, till the Furnace is full.

IV. Lay also with every bed of glass a piece of glass, which you may wipe over with any colour (these are called watches) and when you think your glass is burnt enough, with a pair of plyers take out the first and lowest watch, and lay it on a board, and being cold, try if you can scrape off the colour, if it hold fast on, take out that row; always letting it abide the fire, till the colour will not scrape off.

CHAP. XIX.

Of washing, and the Materials thereof.

I. **B**Y washing here we intend nothing else, but either to set out Maps or Printed Pictures in proper Colours, or else to varnish them.

II. The Instruments and materials of washing are chiefly six: to wit, 1. *Alom-water*. 2. *Size*. 3. *Liquid Gold*. 4. *Pencils*. 5. *Colours*. 6. *Varnish*.

III. *To make Alom-water*. Take Alom eight ounces, fair water a quart, boil them till the Alom is dissolved.

IV. *To make Size*. Take glew, which steep all night
in

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in water, then melt it over the fire, to see that it be neither too strong nor too weak : then let a little of it cool ; if it be too stiff when it is cold, put more water to it, if too weak more glew, using it luke-warm.

V. *Liquid Gold*, It is exactly made by the first Section of the 21 Chapter of the second Book.

VI. *Pencils* are to be of all sorts both fitch'd and pointed, as also a large pencil brush to paste Maps upon Cloth ; another to wet the paper with Alom water ; a third to starch the face of the picture withal before it be coloured : and a fourth to varnish withal.

VII. The colours are the same with those which we mentioned in Chap. 17. lib. 2. to which add, 1. *Of Black*, Printers black, Frankford black. 2. *Of Red*, Vermilion, Rosset. 3. *Of Blew*, Verditure, Litmos Flory. 4. *Of Yellow*, Cambogia, Yellow-berries, Orpiment. 5. *Brazil*, Logwood (ground) and Turnsole, Cocheenele, Madder.

CHAP. XX.

Of Colours simple for washing.

I. **P**rinters black, Vermilion, Rosset, Verditure and Orpiment are to be ground, as we have taught at the fifth Section of the 22 Chapter of the second Book.

II. *Brazil*. To some ground Brazil put small Beer and Vinegar, of each a sufficient quantity, let it boil gently a good while, then put therein Alom in powder to heighten the colour, and some Gum-Arabick to bind it ; boil it till it taste strong on the tongue, and make a good red.

III. *Logwood*. Ground Logwood boiled as Brazil, makes

makes a very fair transparent Purple Colour.

IV. *Cochenele*. Steeped as Brazil was boiled, makes a fair transparent purple: as thus, take *Cochenele* and put it into the strongest Sope-lees to steep, and it will be a fair purple, which you may lighten or deepen at pleasure.

V. *Madder*. Take Madder four drachms, ground Brazil one ounce, Rain-water a quart; boil away a third part; then add Alom half an ounce, boil it to a pint; then Gum-Arabick one ounce, which boil till it is dissolved, cool it stirring it often, and strain it for use. It is a good Scarlet dye for Leather.

VI. *Verdegriese*. Take *Verdegriese* ground finely one ounce, put to it a good quantity of common varnish, and so much oyl of Turpentine, as will make it thin enough to work withal; it is a good green. And *Verdegriese*, Alom, of each one drachm, Logwood three drachms, boiled in Vinegar, make a good Murry.

VII. *Gambogia*. Dissolve it in fair spring water, and it will make a beautiful and transparent yellow: if you would have it stronger, dissolve some Alom therein: it is good for Silk, Linnen, white Leather, Parchment, Vellom, Paper, Quills, &c.

VIII. To make *Verdegriese* and *Ceruse*, according to Glauber.

These colours are made with Vinegar in earthen pots set into hot horse dung: but if you dissolve your Venus or Saturn with spirit of Nitre, and precipitate your Venus with a lye made of Salt of Tartar, and your Saturn with Salt water, edulcorating and drying them; the Venus will yield an excellent *Verdegriese*, which will not corrode other colours as the common *Verdegriese* doth; and the Saturn yields a *Ceruse* whiter and purer than the ordinary much better for Painting or Chirurgery.

IX. Tel-

IX. *Tellow Fustick-berry.* Boil it in water or steep them in Alom water, it makes a good yellow for the same purpose.

X. *Turnsole.* Put it into sharp Vinegar over a gentle fire till the Vinegar boil, and is coloured; then take out the Turnsole and squeeze it into the Vinegar, in which dissolve a little Gum-Arabick; it shadows very well on a Carnation or yellow.

XI. *Limos.* Cut it into small pieces, and steep it a day or two in weak Gum-Lake water, and you will have a pure blew water to wash with.

XII. *Flory Blew.* Grind it with glair of Eggs, if then you add a little Rosset it makes a light Violet blew; mixed with White and Red-lead, it makes a Crane-feather colour.

XIII. *Saffron.* Steeped in Vinegar and mixed with gum-water is a good yellow.

CHAP. XXI.

Of Compounded Colours for washing.

I. **O** *Range Colour.* Red-lead and Yellow berries make a good Orange colour: or thus, take Arnotto half an ounce, Pot-ashes one Drachm, water one pound, boil it half away, then strain it, and use it hot.

It is good for White Leather, Paper, Vellom, Quills, Parchment, &c.

II. *Green.* Take distilled vinegar, filings of Copper, digest till the vinegar is blew, which let stand in the Sun or a slow fire till it is thick enough, and it will be a good green.

Or

Or thus, Take Cedar-green (which is best of all) or instead thereof green Bice, steep it in Vinegar, and strain it; then grind it well with fair water, and put to it a little honey, and dry it well; when you use it, mix it with gum-water.

III. To make fine Indico.

Take the blossoms of Wode three ounces, Amylum one ounce, grind them with Urine and strong Vinegar, of which make a Cake, then dry it in the Sun and so keep it for use.

IV. A Blew to wash upon paper.

Take of the best Azure an ounce, Kermes two ounces, mix them, which temper with clear gum-water, and it will be a glorious colour.

V. To make a Venice Blew.

Take quick Lime, make it into past with strong Vinegar, half an hour after put thereto more Vinegar to soften it; then add Indico in fine powder one ounce, mix them and digest it in horse-dung for thirty or forty days.

VI. Another excellent Blew.

Mix fine white Chalk with juyce of Elder-berries full ripe, to which put a little Alom-water.

VII. To make blew Smalt.

Take fluxible sand, Sal-Nitre and Cobalt, mix them together.

VIII. A lively Tellow.

Diffolve Orpiment in gum-water, to which put a little ground Vermilion; grind them together and you shall have a very lively colour.

IX. A light Green. Take juyce of Rew, Verdegriese, and Saffron, grind them well together and use them with gum-water.

Or thus, Take Sap-green, Flower-deluce, or Tawny green, which steep in water: Verditure and Cernise mixt with

Chap. 22. Colours for Shadowing. 169

with a little Copper green, make a good light colour.

X. *Blew Ultramarine*, blew Bice, Smalt, and Verditure, ground singly with gum-water, or together, make a good blew.

XI. *Brown*. Ceruse, Red-lead, English Oker, and Pink, make a good brown.

XII. *Spanish-brown*. To colour any horse, dog, or the like, you must not calcine it; (yet not calcined it is a dirty colour:) but to shadow Vermilion, or lay upon any dark ground, behind a picture, to shade berries in the darkest places, or to colour wooden posts, wainscot, bodies of Trees and the like, it is very good (being burnt.)

XIII. *Flesh Colour*. Mix white, Indian Lake, and Red-lead (according as you would have it light or deep,) and to distinguish a mans flesh from a womans, mingle with it a little Oker.

XIV. *Colours of Stones*. Verdegriese with Varnish makes an Emerald: with Florence Lake a Ruby: with Ultramarine a Sapphire.

XV. *A never fading Green*.

Take juice of flowers of Flower-de-luce, put it into Gum-water and dry it in the Sun.

CHAP. XXII.

Of mixing Colours and Shadowing.

I. **I**N mixing be careful not to make the colour too fad, nor take the pencils out of one colour and put them into another.

II. In mixing colours, stir them well about the water severally till they are well mixed; then put them together, making the colour sadder or lighter at pleasure.

M

III: Green

III. *Green* is shadowed with Indico and yellow-berries.

IV. *Blew* is shadowed with Indico, Litmose and Flory; or any of them being steeped in Lees of Sopeashes, and used with gum-water.

V. *Garments* are shadowed with their own proper colours: or you may mingle the colour with white (for the light) and shadow it with the same colour unmingled: or you may take the thinnest of the colour for the light, and shadow with the thickest or bottom of the same.

VI. *Sap-green* is only used to shadow other greens with, and not to be laid for a ground in any Garment.

VII. *Lake* ought not to be shaded with any colour, for it is a dark red; but for variety you may shadow it with Bice, or blew Verditure, which will make it like changeable Taffata.

VIII. The shadow for *Yellow-berries* is Umber; but for beauties sake with Red-lead, and the darkest touches with Spanish-brown; and for variety with Copper green, blew Bice or Verditure.

IX. *White* sets off *blews* and *blacks* very well: *Red* sets off well with *yellow*: *Yellows* with *reds*, *fad blews*, *browns*, *greens*, and *purples*.

X. *Blews* set off well with *yellows*, *reds*, *whites*, *browns*, and *blacks*: and *Green* sets off well with *purples*, and *reds*.

C H A P. XXIII.

Of Colours for Landskips.

L Green mixed with white, Pink, Bice, Masticot, Smalt, Indico, or Ceruse; or blew Verditure mixt with a few yellow-berries makes a good green for Landskips.

II. For the *saddest hills* use Umber burnt; for the *lightest places*, put yellow to the burnt Umber: for *other hills* lay Copper green thickened on the fire, or in the Sun: for the next *hills farther off* mix yellow-berries with Copper green: let the fourth part be done with green Verditure; and the *furthest and faintest places* with blew Bice, or blew Verditure mingled with white, and shadowed with blew Verditure, in the shadows indifferent thick.

III. Let the *high-ways* be done with red and white Lead, and for variety Yellow-oker; shadow it with burnt Umber, which you may use for sandy Rocks and Hills.

IV. *Rocks* may be done with several colours, in some places black and white, in other places red and white, and in others blew and white, and the like, as you see convenient.

V. *The water* must be black Verditure and white, shadowed with green and blew Verditure, when the *banks* cast a green shadow upon the water, and the water is dark shadowed, then shade it with Indico, green thickned, and blew Verditure.

VI. Colour *buildings* with as much variety of pleasant colours, as may be imaginable, yet let reason be your rule in mixing your colours: you may sometimes

use white and black for the wall, conduits or other things: for *Brick-houses* and the like, Red-lead and white: if many houses stand together, set them off with variety of colours, as Umber and white; Lake and white; Red-lead and white, and the like.

VII. Lastly, for the *Skie*, use Masticot or yellow-berries, and white for the *lowest and lightest places*; red Rosset and white for the *next degree*; blew Bice and white for the other; blew Bice, or blew Verditure for the highest.

These degrees and colours must be so wrought together, that the edge of each colour may not receive any sharpness; that is, so as that you cannot perceive where you began to lay them, being so drowned one in another.

CHAP. XXIV.

Of the Practice of Washing.

I. **W**ith the *Alom-water* wet over the pictures to be coloured, for that keeps the colours from sinking into the paper; and will add a lustre unto them, make them shew fairer, and keep them from fading.

II. Then let the paper dry of it self (being washed with *Alom-water*) before you lay on the colours; or before you wet it again, for some paper will need wetting four or five times.

III. The washing of the paper with the *Alom-water* must be done with a large pencil brush, such as we have advised to at the sixth Section of the nineteenth Chapter of this Book.

IV. But if you intend to varnish your pictures after you have coloured them; instead of washing them with *Alom-water*, first size them with new size made of good white starch, with a very fine brush; and this
you

you must be sure to do all over, for else the varnish will sink through.

V. Having thus prepared your work go to laying on your colours according to the former directions, suiting them, as near as may be, to the life of every thing.

VI. The Picture being painted, you may with size (as at the fourth Section of the nineteenth Chapter of this Book) paste your Maps or pictures upon cloth, thus : wet the sheet of cloth therein, wring it out, and strain it upon a Frame, or nail it upon a wall or board, and so paste your Maps or pictures thereon.

VII. Lastly, if the Picture be to be varnished, having thus fixed it into its proper Frame, then varnish it with a proper varnish (by the following rules) and the work will be fully finished.

C H A P. XXV.

Of the making of Varnishes.

I. *Varnish for painting in Oyl.*

Take Maltich two ounces, oyl of Turpentine one ounce; put the Maltich in powder into the oyl, and melt it over the fire, letting it boil little or nothing (lest it be clammy;) when it is enough, you may know by putting in a hens feather, for then it will burn it.

II. *Varnish for painted Pictures.*

Take white Rozine one pound, Plum-tree gum (or Gum-Arabick) Venice Turpentine, Linseed-oyl, of each two ounces; first melt the Rozin and strain it very hot; steep the Gum in oyl Olive (oyl ben is better) till it is dissolved, and strain it, to which put the Turpentine and Rozin, and over a slow fire mingle them till

they are well dissolved. When you use it, use it hot.

III. *Another for the same.*

Take Olibanum and gum-Sandrack in powder, which mingle with Venice Turpentine, melting and incorporating them still over a gentle fire, then strain it hot.

When you use it let it be hot, and your Varnish will shine well; it dries immediately.

IV. *Another for the same.*

Take oyl of Linseed, which distill in a glass Retort, one ounce, fair Amber dissolved three ounces, mix them over a slow Fire, and it is done.

V. *A very good Varnish for Gold, Silver, Brass, Iron, Stone, Wood, Vellum, or Paper.*

Take Benjamin (made into fine powder between two papers) put it into a vial, and cover it with Spirit of Wine four fingers above it, and let it stand three or four days; then strain it, and it will be bright and shining, drying immediately, and retaining its brightness many years.

If you Varnish Gold, or any thing gilded, before the straining you should put in a few blades of Saffron for colour sake: but if Silver or any thing white, you ought to use the white part of the Benjamin only.

VI. *A Varnish particularly for Gold, Silver, Tin, or Copper.*

Take Linseed oyl six ounces, Mastick, Aloes Epatick of each one ounce; put the gums in powder into the oyl, into a glazed earthen pot, which cover with another, luting them together, in the bottom of which let be a hole, whereinto put a small stick with a broad end to stir withal; cover them all over with clay, (except the hole,) set it over the fire, and stir it as often as it seetheth for a little while, then strain it for use. First let the metal be polished, then strike it over with this varnish.

VII. A

VII. *A Varnish for Wood and Leather.*

Take Tincture of Saffron or Turmeric in Spirit of Wine a pint, prepared Gum-lake a sufficient quantity, dissolve the gum in the Tincture, and it is done.

This is a Varnish of great use to lay over Gold, and Silver or anything which is exposed to the Air.

VIII. *To make the common Varnish.*

Take spirit of Wine a quart, Rozin one ounce, Gum-lake a sufficient quantity, dissolve the gums in a gentle heat (being close covered) and let them settle: then gently decant off the clear, which keep in a close Glass-bottle for use.

The thick which remains, you may strain through a cloth, and keep for other purposes.

IX. *To make a red Varnish.*

Take spirit of Wine a quart, Gum-lake four ounces, *Sanguis Draconis* in fine powder eight ounces, Cochenele one ounce, digest a week over a gentle heat, then strain it for use.

X. *To make a yellow Varnish.*

Take spirit of Wine a pint, in which infuse (three or four days) Saffron half an ounce, then strain it, and add Aloes Succotrina one ounce, *Sanguis Draconis* two ounces, which digest a week over a gentle heat close covered, then strain it for use.

XI. *An Universal Varnish, the best of all others.*

Take good Gum-Sandrack (but Gum-Anime is better) dissolve it in the highest rectified spirit of Wine (an ounce and half more or less to a pint) and it is done.

Where note, 1. That unless the Spirits be highly rectified the Varnish cannot be good. 2. That some put into it Linseed oyl (which is naught; oyl of ben is better) and mix them together. 3. Some mix boiled Turpentine with it; others Chymical oyls of deep colours (as of Cloves, Mace, Nut-

megs, Caraways, Cinnamon) according to the intent. 4. That it ought to be kept in a glass bottle close stopped, lest it curdle, and the Gums separate.

XII. *The Indian Varnish for Cabinets, Coaches, and such like.*

Take the highest rectified spirit of Wine a quart, seed Lake or shell Lake five ounces, put them into a glass body; and dissolve the Lake in Balneo (but beware lest the water in the Balneum boil, for that will turn the Varnish white) this done strain the matter through a Flannel bag, and keep it in a glass bottle close stopt for use.

Where note, 1. That if the spirit is good, it will (if you put Gun-powder into it) burn all away and fire the Gun-powder. 2. That this Varnish done over leaf Silver, turns the Silver of a Gold colour. 3. That this is that Varnish which Coach-makers and others use for that purpose. 4. That it preserves the Silver which it is laid upon from the injuries of the Air. 5. That being laid upon any colour it makes it look infinitely the more beautiful. 6. That if it lies rough you may polish it with the impalpable powder of Emery and water.

CHAP. XXVI.

Of the manner of Varnishing.

I. **T**HE intent of Varnishing is either to preserve the gloss of paintings or pictures, or else to represent and imitate the forms of shining and per-lucid bodies.

II. To Varnish paintings and pictures, 'tis no more but with a pencil dipt in the varnish to go over the same,

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fame, then letting it dry ; and so going over it so often as in reason you shall see convenient.

III. If you are to imitate any thing, as Marble, Tortoise-shell, Amber, *Lapis Lazuli* or the like ; you must first make the imitation of them, upon that which you would varnish, with their proper colours, as in Limning or Painting with oyl ; which must be thoroughly dry : then by the second Section go over all with the varnish, so often till you see it thick enough ; letting it dry every time leisurely. *For example sake.*

IV. *To imitate Marble.*

Take of the Universal varnish at the eleventh Section of the five and twentieth Chapter , with which mingle Lamp-black (or other black) and White-lead finely beaten, and with a brush pencil, Marble the thing you would varnish according to your fancy ; lastly, being dry strike it again two or three times over with clear varnish alone, and it will be perfect.

V. *To imitate Tortoise-shell.*

First lay a white ground, then with convenient colours (as Vermilion with Auripigment) duly mixt with common varnish, streak and shadow the white ground with any wild fancy (as nearly imitating Tortoise-shell as you can) which being dry, strike it here and there with the red varnish (mixed with a little Sinaper or Indian Lake) then up and down the work as nature requires touch it with varnish mixed with any good black ; then stroke it over with Universal varnish four or five times, letting it dry every times ; lastly, let it dry well a week, and with Pumice stone (in fine powder) and a wet cloth polish it by rubbing ; then go over it again three or four times with the Universal varnish, and (if need require) polish it again with fine putty as before ; after which you may once again strike

strike it over with the said Varnish, and it will be done.

VI. To imitate Tortoise-shell upon Silver or Gold.

A white ground being laid, and smeared over with Vermilion or the like; lay over the same leaves of Silver or Gold (as we have taught in other places) either with Gum-Ammoniacum, Lake, common Varnish or glair; this done, and being dried, shadow it according to reason; striking it over here and there with yellow Varnish, and with the yellow Varnish mixed with a little red Varnish; (all things being done in imitation of the shell) strike it several times over with the Universal Varnish, and polish it (in all respects) as before.

VII. To imitate Lapis Lazuli.

Upon a ground of White-lead, Spodium or the like in common Varnish (being first dry) lay Ultramarine or some other pure blew well mixed with the Universal Varnish, so as that the ground may not appear: then with wild, irregular streaks (in resemblance of Nature) with liquid or shell Gold, run straglingly all over the blew, adding very small specks upon the blew part, of such various colours, as are usually to be seen upon the stone.

CHAP. XXVII.

Experimental Observations of Vegetable Colours in General.

I. **A** Strong infusion of Galls filtred, mixed with a strong and clear solution of Vitriol, makes a mixture as black as *Ink*: which with a little strong Oyl of Vitriol is made *transparent* again: after which the *black* colour is regained again, by the affusion of a little quantity of a strong solution of Salt of Tartar.

The first black (although pale in writing, yet) being dry, appears to be good Ink.

II. Decoction of dried red Roses, in fair water, mixed with a little filtrated solution of blew Vitriol made a black colour: this mixed with a little *Aqua fortis* turn'd it from a black, to a deep red; which by affusion of a little spirit of Urine, may be reduced straight to a thick and black colour.

III. *Yellow wax* is whitened by dissolving it over the fire in spirit of Wine, letting it boil a little, and then exhaling the spirit of Wine; or else whilst it is hot, separating it by filtration.

IV. Fair water mixed with a blood red Tincture of *Benjamin* drawn with spirit of Wine, immediately makes it of a milk white colour.

V. *Blackness* may be taken away with oyl of Vitriol; so black pieces of Silk or Hair I have turn'd to a kind of yellow.

VI. A handful of *Lignum Nephriticum* rasped, infused in four pound of spring water, yields between the
light

light and the eye and almost golden colour (unless the infusion be too strong) but with the eye between the light and it (in a clear vial) a lovely blew as indeed it is : this with spirit of Vinegar may be made to varnish (still keeping its golden colour) and after with oyle of Tartar *per deliquium* may be restored again.

VII. Cloth died with blew and Woad, is by the yellow decoction of *Luteola* died into a green.

VIII. Syrup of Violets mixed with a high solution of Gold in *Aqua regia*, produces a reddish mixture ; and with a high solution of filings of Copper in spirit of Urine, a lovely fair green.

IX. Syrup of Violets mixt with a little juyce of Lemons, spirit of Salt, Vinegar, or the like acid Salt, will be immediately red ; but mixt with oyl of Tartar, or a solution of pot-ashes, it will in a moment be perfect green : the like in juice of blew-bottles.

X. A good quantity of oyl of Tartar, put into a strong solution of Verdegriese, gives a dightful blew, which may be variously changed by adding spirit of Urine, or Hartshorn.

XI. Although red Roses hung over the fume of Sulphur, lose all their redness, and become white : yet oyl of Sulphur (which is nothing but the fumes condensed) doth wonderfully heighten the tincture of the same.

XII. *Cochenele* will have its colour far more heightened by spirit of Urine, than by rectified spirit of Wine : and one grain of *Cochenele* in a good quantity of spirit of Urine, being put into one hundred twenty six ounces of water, tinged it (although but faintly :) which amounts to above one hundred twenty five thousand times its own weight.

XIII. Twenty grains of *Cochenele* being mixed with an ounce of *Saccharum Saturni*, makes a most glori-

glorious purple colour: and so accordingly as the quantity is either diminished or encreased, so the purple colour shall be either lighter or deeper.

XIV. A few grains of *Cochenele* being mixed with the *Lixivium* of Quick-lime in a due proportion, makes a fading purple colour, of the greatest glory imaginable in the world.

XV. The juice of privet berries with spirit of Salt, is turned into a lovely red: but with a strong solution of pot-ashes into a delightful green.

XVI. Upon things red by nature, as Syrup of Clove-gilliflowers, juice of Buckthorn berries, infusion of Red Roses, Brazil, &c. Spirit of Salt makes no considerable change, but rather a lighter red: but other salts turn them into a greenish; especially juice of buckthorn berries.

XVII. Juice of *Jasmin* and snow drops, by a strong *alcalizate* solution, was (although of no colour) turned into a deep greenish yellow.

XVIII. *Buckthorn berries* being gathered green and dried are called *Sap-berries*, which being infused in Alom-water gives a fair yellow (*which is used by Book-binders for the edges of their Books, and to colour Leather also:*) being gathered when they are black, they are called *Sap-green*, and make a green colour being put into a Brass or Copper vessel for three or four days; or a little heated upon the fire, and mixed with Alom in powder, and pressed forth; so put into bladders hanging it up till it is dry: and being gathered about the end of *November*, (when they are ready to drop) they yield a purplish colour.

XIX. Tincture of *Cochenele*, diluted never so much with fair water, will never yield a yellow colour: a single drop of a deep solution in spirit of Urine, diluted in an ounce of fair water, makes a fair Pink, or Carnation.

XX. Oyl

XX. Oyl or spirit of Turpentine, digested with pure white Sugar of lead, yields in a short time a high red tincture, which Chymists call *Balsamum Saturni*.

XXI. Spirit of Salt dropt into a strong infusion of *Cochenele* or juice of black cherries, makes immediately a fair red : but dropt into the infusion of Brazil, a kind of yellow : so the filtrated tincture of *Balaustins* mixed with good spirit of Urine, or the like, turns of a darkish green ; but with spirit of Salt, a high redness, like rich Claret wine ; which glorious colour may in a moment be destroyed, and turned into a dirty green, by spirit of Urine.

XXII. A high infusion of *Lignum Nephriticum*, mixed with spirit of Urine gives so deep a blew, as to make the liquor *opacous* : which after a day or two vanishes, and leaves the liquor of a *bright amber colour*.

Where note that instead of Spirit of Urine you may use oyl of Tartar, or a strong solution of pot ashes.

XXIII. Infusion of Logwood in fair water (mixt with spirit of *Sal Armoniack*.) straight turns into a deep, rich, lovely purple ; two or three drops to a spoonful is enough, lest the colour be so deep, as to be opacous.

XXIV. Spirit of *Sal Armoniack* will turn syrup of Violets to a lovely green.

XXV. Infusion of *Litmose* in fair water gives in a clear glass a purple colour : but by addition of spirit of Salt, it will be wholly changed into a *glorious yellow*.

XXVI. The Infusions and juices of several plants, will be much altered by a solution of Lead in spirit of Vinegar : it will turn infusion of red rose leaves into a sad green.

XXVII. So Tincture of red roses in fair water, would be turned into a thick green, with the solution of *Minnium* in spirit of Vinegar ; and then with the addition of

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of oyl of Vitriol the resolved Lead would percipitate white, leaving the liquor of a clear, high red colour again.

XXVIII. We have not yet found, that to exhibit strong variety of colours, there need be employed any more than these five, White, Black, Red, Blew, Yellow: for these being variously compounded and decomposed exhibit a variety and number of colours; such as those who are strangers to painting can hardly imagine.

XXIX. So Black and White variously mixed, make a vast company of light and deep Grays: Blew and Yellow, many Greens: Red and Yellow, Orange-tawnies: Red and White, Carnations: Red and Blew, Purples, &c. producing many colours for which we want names.

XXX. Acid salts destroy a blew colour: Sulphureous, Urinous or fixed restore it.

XXXI. Acid and Alcalizate salts with many bodies that abound with Sulphureous or oily parts will produce a red, as is manifest in the Tincture of Sulphur, made with *Lixiviums* of Calcined Tartar or pot-ashes.

XXXII. Lastly it may be worth tryal (since it hath succeeded in some experiments) so to take away the colour of a Liquor, as that it may be colourless: which in what we have tryed, was thus: first by putting into the Tincture, Liquor, or Juice, a quantity of the solution of pot-ashes or oyl of Tartar *per deliquium*; and then affusing a good or strong solution of Alom, which in our observations precipitated the tinging matter, or gathered it into one body (like as it were curds) and so left the Liquor transparent and clear as Crystal.

C H A P. XXVIII.

General Experimental observations of Mineral Colours.

I. *S*ublimat^e dissolved in fair water, and mixed with a little spirit of Urine, makes a milk white mixture in a moment: which by addition of *Aqua-fortis*, immediately again becomes transparent.

II. If *Sublimat* two ounces, and *Tin-glass* one ounce be sublimed together, you will have a sublimate not inferior to the best *Orient Pearls* in the world.

III. *Silver* dissolved in *Aqua-fortis* and evaporated to dryness, and fair water poured two or three times thereon, and evaporated, till the *calx* is dry, leaves it of a Snow whiteness: which rubbed upon the skin, (wetted with spittle, water or the like) produces a deep blackness, not to be obliterated in some days.

With this, *Ivory, Hair, and Horns* may be dyed in fair water of a lasting black.

IV. *Coral* dissolved by oyl of *Vitriol, Sulphur*, or spirit of vinegar, and precipitated by oyl of *Tartar*, yields a Snow whiteness. The same of *Crude Lead* and *Quicksilver* dissolved in *Aqua-fortis*: So butter of *Antimony* rectified by bare affusion in much fair water, will (though *Unctuous*) be precipitated into that Snow white powder which (being washed from its corrosive salts) is called *Mercurius Vita*: the like of which may be made without the addition of any *Mercury* at all.

V. *Mercury Sublimat* and *precipitate* yields (with the spirit of Urine, *Hartshorn*, or the like) a white precipitate: but with the solution of *Pot-ashes*, or other

Lixivate

Lixivate Salts an *Orange Tawny*. And if on a filtrated solution of Vitriol, you put the solution of a *fixed salt*, there will subside a copious substance far from whiteness, which Chymists call the Sulphur of Vitriol.

VI. If Copper two ounces be mixed with Tin one ounce, the reddishness will vanish: and if Arsenick (calcined with Nitre) in a just proportion be mixed with melted Copper, it will be blanced both within and without.

VII. Fine powders of blew Bice, and yellow Orpiment slightly mixed, give a good green: and a high yellow solution of good Gold in *Aqua regia*, mixed with a due quantity of a deep blew solution of crude Copper in strong Spirit of Urine, produces a *transparent green*: And so blew and yellow *Amel* fused together in the flame of a Lamp, being strongly blowed on without ceasing, produces at length a green colour.

VIII. An urinous salt, largely put into the dissolution of blew Vitriol in fair water, turn'd the liquor and corpuscles (which resided) into a yellowish colour like yellow Oker.

IX. Verdegriese ground with Salt *Armoniack* and the like (digested for a while in a dunghil) makes a glorious blew.

X. The true glass of *Antimony* extracted with acid spirits (with or without Wine) yields a red tincture.

XI. Balsom of Sulphur (of a deep red in the glass) shaken about, or dropt on paper gives a yellow stain.

XII. If Brimstone and *Sal-Armoniack* in powder, of each five ounces, be mixed with quick-lime in powder six ounces, and distilled in a Retort in sand by degrees; you will have a volatil spirit of Sulphur of excellent redness, though none of the ingredients be so.

So also oyl of *Annisecds* mixed with oyl of Vitriol, gives

in a trice a blood red Colour, which soon decays.

XIII. Fine Silver dissolved in *Aqua-fortis*, and precipitated with spirit of Salt; upon the first decanting the liquor, the remaining matter will be purely white, but lying uncovered, what is subject to the ambient Air will lose its whiteness.

XIV. *Sublimate* dissolved in a quantity of water and filtred, till it is as clear as Crystal, mixed (in a Venice glass) with good oyl of Tartar *per deliquium* filtred, (three or four drops to a spoonful) yields an opacous liquor or a deep Orange colour; after which if four or five drops of oyl of Vitriol be dropt in, and the glass straightway be strongly shaken, the whole liquor will (to admiration) be colourless without *sediment*. And if the filtred solution of *sublimed Sal-Armoniack* and *Sublimate* of each alike be mixt with the solution of an *Alcali*, it will be white,

XV. Spirit of *Sal-Armoniack* makes the solution of *Verdigriese* an excellent *Azure*; but it makes the solution of *Sublimate* yield a white precipitate.

XVI. So the solution of filings of Copper in spirit of Urine (made by fermentation) gives a lovely *Azure* colour: which with oyl of Vitriol (a few drops to a spoonful) is deprived in a trice of the same, and makes it like fair water. And so a solution of *Verdigriese* in fair water, mixed with strong spirit of Salt, or dephlegmed *Aqua-fortis*, makes the greeness almost totally to disappear.

XVII. Quick-silver mixed with three or four times its weight of good oyl of Vitriol, and the oyl drawn off in sand, through a glass Retort, leaves a Snow white precipitate; which by affusion of fair water, becomes one of the loveliest light yellows in the world, and a durable colour.

XVIII. Tin calcined *per se* by fire, affords a very white
calx

calx called *Putty*: Lead, a red powder called *Minium*: Copper a dark or greyish powder: Iron a dirty yellowish colour, called *Crocus Martis*: and Mercury a red powder:

XIX. Gold dissolved in *Aqua Regia* Ennobles the *Menstruum* with its own colour: Silver Coynd dissolved in *Aqua-fortis* yields a tincture like that of Copper; but fine Silver a kind of faint blewistness: Copper dissolved in spirit of Sugar (drawn off in a glass Retort) or in oyl or spirit of Turpentine, affords a green tincture; but in *Aqua-fortis*, a blew.

XX. *Vermilion* is made of *Mercury* and *Brimstone* sublimed together in a due proportion.

XXI. Glass may have given to it a lovely golden colour with Quick-Silver; but it is now coloured yellow generally with *calx* of Silver: yet shell-Silver, (such as is used with pen or pencil) mixed with a convenient proportion of powdered glass, in three or four hours fusion, gave a lovely Sapphirine blew.

XXII. Glass is tinged green (by the Glass-men) with the *Calx of Venus*: which *Calx* mixed with an hundred times its weight of fair glass, gave in fusion a blew coloured mass.

XXIII. *Putty* (which is Tin calcined) as it is white of it self, so it turns the purer sort of glass metal into a white mass, which when opacous enough, serves for white *Amel*.

XXIV. This white *Amel* is as it were the Basis of all those fine Concretes, that Gold-smiths, and several Artificers use, in the curious Art of *Enameling*; for this white and fusible substance, will receive into it self, without spoiling them, the colours of divers other Mineral substances, which like it will endure the fire.

XXV. Glass is also tinged blew with the dark mineral called *Zaffora*; and with *Manganese* or *Magnesia* in a certain proportion, which will tinge glass of a red colour; and also of a Purplish or Murry; and with a greater quantity, into that deep colour which passes for black.

XXVI. Yellow Orpiment sublimed with Sea-Salt, yields a white and Crystalline Arsenick; Arsenick coloured with pure Nitre being duly added to Copper in the fusion, gives it a whiteness both within and without.

XXVII. So *Lapis Calaminaris* turns Copper into Brass.

XXVIII. And *Zink* duly mixed with Copper when 'tis in fusion, gives it the noblest golden colour that was ever seen in the best gold.

XXIX. Copper dissolved in *Aqua-fortis* will imbue several bodies of the colour of the solution.

XXX. Lastly, Gold dissolved in *Aqua regia* will (though not commonly known) dye Horns, Ivories and other Bones of a durable purple colour: And the Crystals of Silver made with *Aqua-fortis*, (though they appear white) will presently dye the Skin, Nails, Hair, Horn, and Bones, with a Black, not to be washed off.

C H A P. XXIX.

*Of Metals.*I. **T**O harden Quick-silver.

Cast your Lead separated from its dross into a vessel, and when it begins to cool, thrust in the point of a stick, which take out again and cast in the Argent Vive, and it will congeal: then beat it in a mortar, and do so often; when it is hard, melt it often and put it into fair water, doing it so long till it is hard enough, and may be hammered.

II. *To tinge Quick-silver of the colour of Gold.*

Break it into small pieces (being hardned) which put into a Crucible, with the powder of *Cadmia*, *stratum super stratum*, mixed with Pomegranate peels, Turmeric (beaten fine) and Raisons, cover the Crucible and lute it well, dry it well; and then set it on a fire for six or seven hours, that it may be red-hot; then blow it with bellows till it run, which then let cool whilst covered with coals, and it will have the colour of gold.

III. *To fix Quick-silver being hardned.*

This is done with fine powder of Crystal glass, laid with the Metal *stratum super stratum* in a Crucible covered and luted; heating it all over red-hot, and then melting of it.

IV. *To make Quick-silver malleable.*

First harden it by the first Section, then break the Metal into small pieces, and boil it a quarter of an hour in sharp vinegar: then add a little *Sal-Armoniack*, and digest all together for ten or twelve days; then boil all together in a luted Crucible, till it is red-hot, and by

degrees crack : lastly, hang the Mercury in a pot with Brimstone at bottom to cover it ; lute it and set it into the fire , that it may grow hot by degrees, and receive the fume of the Sulphur ; do thus for a month once a day , and the Mercury will run and be hammered.

V. *Another way of tinging Mercury.*

Take purified Mercury one ounce, Sulphur two ounces, *Aqua-fortis* three ounces, let them all stand till the water grow clear ; distil this with its sediment , and at bottom of the Limbeck you shall find the Mercury hard, and of an exact colour.

VI. *To colour and soften Gold.*

Dissolve Verdegriese in vinegar , and strain it through a felt , then congeal, and when it begins to wax thick, put to it some Sal-Armoniack , and let it harden a good while, then melt gold with it, and it will heighten the colour and make it soft.

VII. *To make Gold and Silver softer.*

Take Mercury Sublimate, Sal-Armoniack , of each alike, powder them, melt the gold, and put to it a little of this powder, and it will be soft.

VIII. *Another way to do the same.*

Take Vitriol, Verdet, Sal-Armoniack, burnt Brasse, of each half an ounce, mix them with *Aqua-fortis* , let it so repose in the heat two days, then let it harden, do thus three times with *Aqua-fortis*, and let it dry , make it into powder, to one dram put one ounce of gold three times and it will be softer.

IX. *Another way to do the same in Silver.*

Take Salt-peter, Tartar, Salt, Verdet, boil all together, till the water is consumed, then put to it Urine; and let it so consume, and you shall have an oyl, which put into melted Silver will do the same.

Or thus, Take as many wedges as you have melted, put them

them one night into a crucible in a furnace, but so as they melt not, and they will be soft and fair.

Or thus, Take honey, oyl, of each alike, in which quench the Gold or Silver three or four times, and it will be softer.

Or thus, Take Mastich, Frankincense, Myrrh, Borax, Vernix, of each alike all in powder.

Or thus, Quench the Gold or Silver in water of Sal-Armoniack, and it will be soft.

X. To tinge Silver of a Gold colour.

Take fine Gold, fine Silver, good Brass, and Brass or Copper calcin'd with Sulphur-vive, of each alike, melt them down together, and it shall appear to be gold of eighteen carets fine.

XI. Another way to tinge Silver.

Take Quick-silver purged three ounces, leaf-gold one ounce, mix them and put them into a glass Retort well luted, put it on the fire till it grow hot; then take it off, and add to it Quick-silver purged two ounces, Sal-Armoniack one ounce, Sal Ellebrot half an ounce, Borax two drachms; then seal up the glass hermetically, and put it into a continual fire for three dayes; then take it out, let it cool, open the Retort, take out the matter, and powder it very fine: of which powder mix one ounce with silver fine ounces, and it will tinge it into a good gold colour.

Note, Sal Ellebrot is thus made. Take pure common Salt, Sal Gem, Sal Alkali in powder, of each one ounce, juice of mints four ounces, spring water four pound, mingle them, and evaporate. And Quick-silver is purged by washing it in sharp Vinegar three or four times and straining it; or by subliming it which is better.

XII. To bring Silver into a Calx.

This is done by amalgamating of it with Quick-silver, and then subliming of it; or by dissolving it in

Aqua-fortis, and precipitating it with the solution of Salt in fair water, and then washing it with warm water often to free it from the salts: or else by mingling the filings with sublimed Mercury, and in a Retort causing the Mercury to ascend, which will leave at bottom the Calx of Silver, fit for Jewels, &c.

XIII. *To blanch Silver.*

Take *Sal-Armoniack*, *Roch-Alom*, *Alom Plumosum*, *Sal gem*, *Argol*, *Roman-Vitriol*, of each alike; powder and mix them, and dissolve them in fair water, in which boil the Silver so long, till you see it wonderful white.

XIV. *To colour Silver of a Gold-colour*

Take Salt-peter two pound, *Roch-Alom* five pound, mingle, and distil them, keeping the water for use. When you use it, melt the Silver, and quench it in the said water.

XV. *To tinge Brass of a Gold colour.*

Dissolve burnt Brass in *Aqua-fortis* (made of *Vitriol*, *Salt-peter*, *Alom*, *Verdegriese*, and *Vermilion*) and then reduce it again, and it will be much of a gold colour.

XVI. *To make Brass through white.*

Heat Brass red-hot, and quench it in water distilled from *Sal-Armoniack*, and *Egg-shells* ground together, and it will be very white.

XVII. *To make Brass white otherwise.*

Take *Egg-shells* and calcine them in a Crucible, and temper them with the whites of Eggs, let it stand so three weeks; heat the Brass red-hot, and put this upon it.

XVIII. *To make Brass.*

Take Copper three pounds, *Lapis Calaminaris* one pound in powder, melt them together the space of an hour, then put it out.

XIX. *The way to colour Brass white.*

Dissolve

Dissolve a peny weight of Silver in *Aqua-fortis*; putting it to the fire in a vessel, till the Silver turn to water; to which add as much powder of white Tartar as may drink up all the water, make it into balls, with which rub any Brass, and it will be white as Silver.

XX. *To tinge Copper of a Gold colour.*

Take Copper, *Lapis Calaminaris*, of each four drachms, Tutty two drachms; heat the Copper red-hot twice, quenching it in piss: doing the like by the *Lapis* and Tutty: take of the dissolved Copper half an ounce, adding to it Honey one ounce, boil them till the Honey look black and is, dry that it may be powdered, which then beat with the *Lapis* and Tutty: boil them again, till the Copper is melted, and it is done.

XXI. *Another way to make Copper of a Gold colour.*

Take the Gall of a Goat, Arsnick, of each a sufficient quantity, and distil them; then the Copper being bright being washed in this water, will turn into the colour of Gold.

XXII. *Another way to do the same.*

Melt Copper, to which put a little Zink in filings, and the Copper will have a glorious golden colour.

XXIII. *To make Copper of a white colour.*

Take Sublimate, Sal-Armoniack, of each alike; boil them in Vinegar, in which quench the Copper being made red-hot; and it will be like Silver.

XXIV. *Another way to whiten Copper.*

Heat it red-hot divers times, and quench it in oyl of Tartar *per deliquium*, and it will be white.

XXV. *Another way to whiten Copper.*

Take Arsnick three ounces, Mercury Sulimate two ounces, Azure one ounce, mix them with good and pure grease like an ointment, with which anoint any Copper vessel, then put that vessel into another, and set

set it into a digestive heat for two months, after which cleanse it with a brush and water, and it is done.

XXVI. *Another way to whiten Copper.*

Take Arsnick calcined with Salt-peter, and Mercury Sublimate, which cast upon melted Copper, and it will be white like Silver.

XXVII. *To soften Copper.*

Melt burnt Brass with *Borax* in a Crucible, quench it in Linseed-oil, and then beat it gently on an Anvil; boil it again and quench it in oil as before, doing thus five or six times, till it is soft enough; and this will neatly unite with Gold, of which you may put in more by half than you can of other Brass.

XXVIII. *To tinge Iron with a Gold colour.*

Lay in a Crucible plates of Iron and Brimstone, *stratum super stratum*, cover and lute it well, and calcine in a furnace, then take them out and they will be brittle: put them into a pot with a large mouth, and put in sharp distilled vinegar, digesting till they wax red over a gentle heat: then decant the vinegar, and add new, thus doing till all the Iron be dissolved; evaporate the moisture in a glass Retort or *Vesica*, and cast the remaining powder on Silver, or other white Metal, and it will look like Gold.

XXIX. *To make Iron or Silver of a Brass colour.*

Take Flowers of Brass, Vitriol, *Sal-Armoniack*, of each alike in fine powder; boil it half an hour in strong vinegar, take it from the fire, and put in Iron or Silver, covering the vessel till it be cold, and the Metal will be like to Brass, and fit to be gilded: or rub polished Iron with *Aqua-fortis* in which filings of Brass is dissolved.

XXX. *To tinge Iron into a Brass colour.*

Melt the Iron in a Crucible casting upon it Sulphur *vive*, then cast it into small rods, and beat it into pieces
(for

(for it is very brittle) then in *Aqua-fortis* dissolve it, and evaporate the *menstruum*, reducing the powder by a strong fire into a body again, and it will be good Brass.

XXXI. To whiten Iron.

First purge it, by heating it red hot and quenching it in a water made of Ley and Vinegar, boil'd with Salt and Alum, doing this so often till it is somewhat whitened. The fragments of the Iron beat in a mortar till the Salt is quite changed, and no blackness is left in the Liquor of it, and till the Iron is cleansed from its dross: then *Amalgamate* Lead and Quick-silver together, and reduce them into a powder: lay the prepared plates of Iron and this powder *stratum superstratum* in a Crucible, cover it, and lute it all over very strongly, that the least fume may not come forth, and put it into the fire for a day; at length encrease the fire, so as it may melt the Iron (which will quickly be) and repeat this work till it is white enough: It is whitened also by melting with Lead, the Marchasit or fire-stone and Arsnick. If you mix a little Silver (with which it willingly unites) with it, it gives a wonderful whiteness, scarcely ever to be changed any more, by any art whatsoever.

XXXII. To keep Iron from Rusting.

Rub it over with vinegar mixt with Ceruse, or with the marrow of a Hart: if it be rusty, oyl of Tartar *per deliquium* will presently take it away and cleanse it.

XXXIII. To cleanse Brass.

Take *Aqua-fortis* and water of each alike, shake them together, and with a woollen rag dipt therein rub it over: then presently rub it with an oily cloth; lastly, with a dry woollen cloth dipt in powder of *Lapis Calaminaris*, it will be clear and bright as when new.

XXXIV. To soften Iron.

Take

Take Alom, Sal-Armoniack, Tartar, of each alike, put them into good Vinegar, and set them on the fire, heat the Iron, and quench it therein: or quench it four or five times in oyl, in which melted Lead hath been put six or seven times.

XXXV. *To make Iron of a Gold colour.*

Take Alom of Melancy in powder, Sea-water; mix them: then heat the Iron red-hot, and quench it in the same.

XXXVI. *To make Iron of a Silver colour.*

Take powder of Sal-Armoniack, unslak'd-lime, mix and put them into cold water, then heat the Iron red-hot, quench it therein, and it will be as white as Silver.

XXXVII. *To soften steel to grave upon.*

This is done with a *Lixivium* of Oak-ashes and unslak'd-Lime, by casting the Steel into it, and letting it remain there fourteen days. Or thus, take the Gall of an Ox, man's Urine, Verjuice, and juice of Nettles of each alike, mix them; then quench Steel red-hot therein four or five times together, and it will become very soft.

XXXVIII. *To harden Iron or Steel.*

Quench it six or seven times in Hogs blood mixed with Goose-grease, at each time drying it at the fire before you dip it again, and it will become very hard and not brittle.

XXXIX. *To solder on Iron.*

Set the joynts of Iron as close as you can, lay them in a glowing fire, and take of Venice-glass in powder, and the Iron being red-hot, cast the powder thereon, and it will solder of it self.

XL. *To counterfeit Silver.*

Take Crystal Arsnick eight ounces, Tartar six ounces, Salt-peter two ounces, Glass one ounce and an half,
Sub-

Sublimate half an ounce: make them severally into fine powder and mix them: then take three pound of Copper in thin plates which put into a Crucible (with the former powder *stratum super stratum*) to calcine, covering it and luting it strongly, let it stand in the Furnace for about eight or ten hours: then take it out, and (being cold) break the pot, and take out all the matter, and melt it with a violent fire, casting it into some mold. Then take purged Brās two pound, of the former metal one pound; melt them together, casting in, now and then, some of the afore-said powder, after which add half as much of fine Silver melting them together, and you have that which is desired: lastly, to make it as white as Silver, boil it in Tartar.

XLI. Another way to counterfeit Silver.

Take purified Tin eight ounces, Quick-silver half an ounce, and when it begins to rise in the first heat, take powder of Cantharides, and cast into it, with a lock of hair, that it may burn in it; being melted put into it the powder afore-said, then take it suddenly from the fire, and let it cool.

XLII. To purge the Brās.

It is cleansed or purged, by casting into it when it is melted, broken Glas, Tartar, Sal-Armoniack and Salt-peter, each of them by turns, by little and little.

XLIII. To tinge Lead of a Gold colour.

Take purged Lead one pound, Sal-Armoniack, in powder, one ounce, Salt-peter half an ounce, Sal-Ele-brot two drachms; put all into a Crucible for two days, and it will be thoroughly tinged.

XLIV. To purge Lead.

Melt it at the fire, then quench it in the sharpest Vinegar; melt it again and quench it in the juice ofcelandine: melt it again and quench it in Salt-water: then

then in vinegar mixed with *Sal. Armoniack*: and lastly melt it, and put it into ashes, and it will be well cleansed.

XL V. To make Lead of a Golden colour.

Put Quick-silver one ounce into a Crucible, set it over the fire till it is hot, then add to it of the best leaf-gold one ounce, and take it from the fire, and mingle it with purified Lead melted one pound; mingle all well together with an Iron rod, to which put of the filtrated solution of Vitriol in fair water one ounce; then let it cool, and it will be of a gold colour. Dissolve the Vitriol in its equal weight of water.

XL VI. To take away the ringing, and softness of Tin.

Melt the Tin, and cast in some Quick-silver, remove it from the fire, and put it into a glass Retort, with a large round belly, and a very long neck, heat it red-hot in the fire, till the Mercury sublimes and the Tin remains at bottom; do thus three or four times. The same may be done by calcining of it three or four times, by which means it will sooner be red-hot than melt.

XL VII. To take away the softness and creaking noise of Tin.

This is done by granulating of it often, and then reducing it again, and quenching it often in vinegar and a Lixivium of Salt of Tartar. The creaking noise is taken away by melting it seven or eight several times and quenching it in Boys Urine, or else oyl of Walnuts.

XL VIII. To take away the deaf sound of Tin.

This is done by dissolving it in *Aqua-fortis* over a gentle fire, till the water fly away: doing thus so long till it is all turned to a *calx*; which mixed with *calx* of Silver, and reduced, performs the work.

XLIX. To make that Tin crack not.

Take

Take Salt, Hony, of each alike, and mix them : melt your Tin and put it twelve or more times into it, then strain out the Tin, and it will purge and leave cracking ; put it into a Crucible, which lute, and calcine it four and twenty hours, and it will be like *calx* of Gold.

L. To take away the brittleness of any Metal.

First calcine it and put it under dung, then do thus ; when it is red-hot at the fire, or melted, quench it often in *Aqua vita* often distilled ; or use about them Rosin or Turpentine, or the oyl of it, or wax, suet, Euphorbium, Myrrh, artificial Borax : for if a metal be not malleable, unctuous bodies will oftentimes make them softer, if all these, or some of these be made up with some moisture into little cakes : and when the metal yields to the fire, by blowing with the bellows, we cast in some of them and make them thick like mud, or clear, then set the Metal to the fire, that it may be red-hot in burning coals, take it forth and quench it in them, and so let it remain half an hour to drink in. Or anoint the Metal with Dogs grease, and melt it with it, for that will take away much of the brittleness of it, and make it so that it may be hammered and wrought.

L.I. To colour Metal like Gold.

Take Sal-Armoniack, White Vitriol, Stone-salt, Verdegriese, of each alike, in fine powder ; lay it upon the Metal, then put it into the fire for an hour, take it out and quench it in Urine, and the Metal will have the colour of Gold.

L.II. To make a kind of Counterfeited Silver of Tin.

This is done by mingling Silver with Tin melted with Quick-silver, continuing it long in the fire, then being brittle, it is made tough, by keeping it in a gentle

the fire or under hot embers (in a Crucible) for about twenty four hours.

LIII. *To solder upon Silver, Brass or Iron.*

Take Silver five peny weight, Brass four peny weight, melt them together for soft Solder, which runs soonest.

Take Silver five peny weight, Copper three peny weight, melt them together for hard Solder.

Beat the Solder thin and lay it over the place to be Soldred, which must be first fitted, and bound together with Wire as occasion requires: then take Borax in powder, and temper it like pap, and lay it upon the Solder, letting it dry, then cover it with quick coals and blow, and it will run immediately; then take it presently out of the fire, and it is done.

Note, 1. If a thing is to be Soldred in two places, (which cannot be well done at one time) you must first Solder with the hard Solder, and then with the soft; for if it be first done with the soft, it will unsolder again before the other be Soldred. 2. That if you would not have your Solder run about the piece to be Soldred, rub those places over with Chalk.

LIV. *To make the Silver Tree of the Philosophers.*

Take Aqua fortis four ounces, fine Silver one ounce, which dissolve in it: then take Aqua fortis two ounces, in which dissolve Quick Silver: mix these two Liquors together in a clear glass, with a pint of pure water; stop the glass close, and after a day, you shall see a Tree to grow by little and little, which is wonderful and pleasant to behold.

LV. *To make the Golden Tree of the Philosophers.*

Take oyl of Sand or Flints, oyl of Tartar per deliquium, of each alike, mix them well together, then dissolve Sol in Aqua Regis, and evaporate the menstruum, dry the Calx by the fire, but make it not too hot (for then it will lose its growing quality)

lity) break it into little bits (not into powder) which bits put into the aforesaid liquor, a fingers breadth one from another in a very clear glass, keep the liquor from the Air, and let the Calx stand still, and the bits of Calx will presently begin to grow: first swell; then put forth one or two stems; then divers branches and twigs, so exactly, as you cannot but wonder to see.

Where note, that this growing is not imaginary but real.

LVI. *To make the Steel Tree of the Philosophers.*

Dissolve Steel in rectified spirit or oyl of Salt, so shall you have a green and sweet solution, smelling like Brimstone; filter it, and abstract all the moisture with a gentle heat, and there will distill over a liquor, as sweet as rain water (for Steel by reason of its dryness detains the Corrosiveness of the spirit of Salt, which remaineth in the bottom, like a blood-red mass, and it is as hot on the tongue as fire:) dissolve this blood-red mass in oyl of Flints or Sand, and you shall see it grow up in two or three hours like a Tree with stem and branches.

If you prove this Tree at the test, it will yield good Gold, which it draweth from the oyl of Sand or Flints; the said oyl being full of a pure golden Sulphur.

LVII. *To make oyl of Flints or Sands.*

Take of most pure Salt of Tartar in fine powder twenty ounces, small Sand, Flints, Pebbles, or Crystals in fine powder five ounces, mix them; put as much of this as will fill an Egg-shell into a Crucible, set it in a Furnace, and make it red-hot, and presently there will come over a thick and white spirit, take out the Crucible whilest it is hot, and that which is in it, like transparent glass, keep from the Air; after beat it to powder, and lay it in a moist place, and it will

O

dissolve

dissolve into a thick, fat oyl, which is the oyl of Flints, Sand, Pebbles or Crystals. This oyl precipitateth Metals, and makes the Calx there more heavy than oyl of Tartar doth; it is of a golden nature, and extracteth colours from all Minerals; it is fixed in all fires, maketh fine Crystals, and Borax, and maturateth imperfect Metals into Gold.

LVIII. *To melt Metals quickly.*

Take a Crucible, and make in it a lay or course of the powder of any Metal, then lay upon it a lay of Sulphur, Salt-peter and Saw-dust, of each alike mixed together, put a coal of fire to it, and the Metal will immediately be in a mass.

LIX. Lastly, He that shall observe the work and reason of the Silver, Golden and Steel Trees, may in like manner produce the like out of the Calx of other Metals.

CHAP. XXX.

Of the Instruments and Materials of Casting.

I. **H**E that would learn to cast must be provided of all the chief Tools thereto belonging; which are 1. *A Trough.* 2. *Sand.* 3. *A Flask.* 4. *Skrew.* 5. *Tri-poli.* 6. *The Medal or Form.* 7. *A Furnace.* 8. *Crucibles.* 9. *A Pipe.* 10. *Tongs.* 11. *Two Oak Plates.* 12. *Pledgets of wool.* 13. *Oyl and Turpentine.* 14. *A Hares Foot.* 15. *Brushes.*

II. *The Trough* is a four-square thing about half a foot deep, or something more; and its use is to hold the Sand.

III. Of

III. Of *Sand* there is various sorts, the chief are High-gate Sand, and Tripoli; the which to make fit for the work you must order thus:

If it is High-gate Sand, you must finely sift it; if Tripoli, you must first beat it fine, then sift it through a fine Sieve: to either of these fine Sands you must put of pure fine Bole (an ounce to nine ounces) well beaten, dissolved in water, and lastly reduced into fine powder; which powders you must moderately moisten with this Magisterial water, viz. filtrated Brine made of decrepitated common Salt: or the same, mixed with glair of Eggs.

IV. The *Flask* is a pair of Oval Irons, containing only sides to hold the Sand, which must be pressed hard thereinto: and a passage or mouth for the Metal to run in at.

V. The *Screw* is an Iron Press, between which the Flask is put and prest, after that it is filled with Sand, and hath received the form or impression to be cast.

VI. *Tripoli* is that of which the second sort of Sand is made, which here ought to be calcined and beaten into impalpable powder, to strew over the sandy moulds; first that the sides of the Flask may not cleave together when they are full; secondly that the thing cast may have the perfect form and impression, without the least scratch or blemish imaginable.

VII. The *Medal* or Form, is that which is to be impressed upon the Sand, whose likeness we would imitate.

VIII. The *Furnace* is that which contains the fire, where the Crucible is put, for the Metal to melt in, which is generally melted with Charcoal.

IX. The *Crucibles* are calcining or melting pots, (commonly three-square) made so as they may en-

dure the fire all over, in which the Metal is to be melted.

X. The *Pipe* is a hollow Reed, or piece of Tin, to blow coals and filth out of the Crucible.

XI. The *Tongs* are a crooked Instrument to take coals out of the Crucible with, as also to stir and repair the fire; and to take the pot out of the Furnace when you go to Cast.

XII. The *two Oak plates* are to be smooth, and to be put between the Flask and the sides of the Skrew, on each side.

XIII. *Pledgets of wool* are to be put between the Oak plates and the Sand, to fill up empty spaces if there be any.

XIV. The *Oyl and Turpentine* is to wet some paper or cotton threads, which must be set on fire, to smoak the Impression or Mould (being dry) that the Metal may run the better.

XV. The *Hares-foot* is to wipe the hollow places in the Mould, if they should be too much filled with smoak.

XVI. The *Brushes* ought to be two, to wit, one with thick bar Wire strings, another with Hogs-bristles, wherewith the work (both before and after casting) ought to be rubbed and cleansed.

CHAP. XXXI.

The way and manner of Casting.

I. **W**ash the Medal in Vinegar, in which put some Salt and Straw-ashes; and rub it well with the aforesaid hair-brush, then wash it with water, and dry it well.

II. Place the female part of the Flask upon one of the Oak plates; so that the middle part, viz. that which is joyned to the other, may lie downwards.

III. Then put the cleansed Medal in the Flask upon the Oak plate, in a right line to the mouth of the Flask: and if there be two, let them be placed so, that there may be a place left in the middle for the melted Metal to run in at.

IV. Then take of the aforesaid earth or sand prepared, (that is, so much moistened with the Magisterial water, that being crushed between the hands or fingers, it will not stick but like dry flour, and will stand with the print of the hand closed together) and press it on well in the Flask upon the Medal with the fleshy part of your fingers or hand; then with a rule strike off all the superfluous sand that sticks about the Flask.

V. This done, the pledgets of wool, or a woollen cloth, must be laid upon it, and then the other Oak plate, and then turned up with both hands, the plates being both held close.

VI. Then taking off the upper plate; put upon it the male part of the Flask, which fill with sand in like manner (the Medal being now between) pressing it

down as before, and then with a ruler striking away the superfluous sand.

VII. Upon which lay a woollen cloth, and gently lift off the top, or upper part of the Flask, so that the medal may be taken forth.

VIII. All things being thus done with a knife (or some such like) cut the passage for the Metal, which let be a little dry'd: then,

IX. Either strew over the side of the impression (now taken off) with a calcined Tripoli ground impalpable; applying it upon the female Flask again; turn the female Flask uppermost, which take off, and strew it in like manner, with the calcined Tripoli, and putting them together again, press them so hard, as that the fine Tripoli may receive the most perfect impression of the Medal, which then take out, by separating the sides of the Flask, and gently shaking that part which holds it, till it falls out.

X. Or with Cotton wet in Oyl and Turpentine and set on fire let the impression be smoaked; and if any superfluous fume be taken, wipe it off with a Hares-foot.

XI. Then joyn the sides of the Flask together, putting them with the woollen cloaths between the Oaken plates, which put into the Press, and skrew them a little.

XII. Then the Metal being melted, put it into the mould being hot, which if it be Silver, or blanch'd Brasse, or Copper, it will run well enough.

XIII. But if it runs not well, you may cast in about the hundredth part of Mercury sublimate, and an eighth part of Antimony; for so it will not only run well, but also be a harder Metal.

XIV. Lastly, the Medal being cooled, take it neatly out and keep it.

Where

Where note, 1. That so long as the Impression or Mould is not spoiled, you may still cast more Medals therein; but when it decays, you must perfectly renew the whole work as at first. 2. That you may blanch them with a pure whiteness by the ninth Section of the nine and twentieth Chapter of this Book: or thus, if they be of whitened Brass, Take Salt-Armoniack one ounce and an half, Salt-peter two ounces and an half, Leaf-silver twenty four grains; mix them and evaporate them in a luted Crucible, having a hole in the cover, till all the moisture is gone; being cold beat all into fine powder; of which take one ounce, Salt, Alom, Tartar, of each one handfull, fair water a sufficient quantity; mix and boil all in a glazed vessel, in which put the Medals boiling them till they are purely white: then rub them with the Tartar in the bottom very well, wash them in fair water and dry them. 3. That if the Medals be of Gold, or of a golden colour, you may heighten it with Verdegriese and Urine.

CHAP. XXXII.

*Of Glass and Precious Stones.*I. **T**O melt Crystal.

Beat Crystal to bits, and put them into an Iron spoon, cover it and lute it well, and heat it in the fire till it is red-hot, which quench in oyl of Tartar: this do so often, till they will easily beat to powder in a mortar, which will then easily melt.

This is of use to counterfeit Jewels with.

II. To make a Cement for broken Glasses.

Glair of Eggs mixed with Quick-lime will joyn broken pieces of glass together, and all earthen-pots, so

as that they shall never be broken in the same place again.

Or thus, Take old liquid Varnish, and joyn the pieces therewith; bind them together, and dry them well in the Sun or in an Oven, and they will never unglew again; but put no hot liquor into them then.

Or thus, Take White-lead, Red-lead, Quick-lime, Gum-sandrack, of each one ounce, mix all with glair of eight Eggs.

Or thus, Take White-lead, bole, liquid varnish as much as sufficeth.

Or thus, Take White-lead, Lime, glair of Eggs as much as sufficeth.

Or thus, Take fine powder of glass, Quick-lime, liquid varnish, of each a sufficient quantity.

Or thus, Take Quick-lime powdered, liquid varnish, glair of Eggs, of each alike: grind them upon a stone: this is a strong glew even for stones.

Or thus, Take calcined flints and Egg-shells of each alike, and with whites of Eggs and Gum-tragacanth, or dissolution of Gum-sandrack make glew, this in few days will be as hard as stone.

Or thus, Take calcined flints two pound, Quick-lime four pound, Linseed-oyl so much as may temper the mixture, this is wonderful strong; but with liquid varnish it would be stronger.

Or thus, Take Fish glew, and beat it thin, then soak it in water till it is like paste, make roulds thereof which draw out thin: when you use it, dissolve it in fair water over the fire, letting it seeth a while and scumming of it, and whilest it is hot use it. This not only cements glass, but Tortoise-shell and all other things.

III. To make Glass green.

Green glass is made of Fern ashes, because it hath much

much of an Alkaly Salt. Crystal or Venice-Glass is tinged green with Ore of Copper; or with the Calx of Copper five or six grains to an ounce.

IV. *To counterfeit a Diamond.*

Take a saphyre of a faint colour, put it into the middle of a Crucible in Quick-lime, and put it into a gentle fire, and heat it by degrees till it is red-hot, keep it so for six or seven hours; let it stand in the Crucible till it is cold, (lest taking it out hot it should break) so will it lose all its colour, and be perfectly like a Diamond, so that no file will touch it: if the colour is not all vanished at the first heating, you must heat it again till it is perfect.

V. *To prepare the Salts for counterfeit Gems.*

The Salts used in making counterfeit Gems, are chiefly two, the first is made of the Herb Kali; the second of Tartar; their preparations are according to the usual way (but in Glass vessels.)

VI. *To prepare the matter of which Gems are made.*

The matter is either Crystal or Flint that is clear and white: put them into a Crucible in a reverberatory heat (the Crucible being covered) then take them out and cast them into cold water, so will they crack and easily reduce to powder: of which powder take an equal quantity with Salt of Tartar (or *Sal Alkali*) to which mixture add what colour you please, which must be either Metalline or Mineral: put them into a very strong Crucible (filling it about half full) cover it close, and melt all in a strong fire till it becomes like glass.

Where note, in melting you must put an Iron rod into it, and take up some of it, and if it is free from bubbles, grains, or specks, it is fused enough: if not, you must fuse it till it is free.

VII. *To make a counterfeit Diamond of Crystal.*

Put

Put Crystal in a Crucible and set it in a Glass Furnace all night, and then bring it to fine powder, mix it with equal parts of *Sal Tartari*, digest all night in a vehement heat, but yet not to melt, then take them out, and put them into another vessel which will stoutly endure the fire; let them stand melted two days and take out the mass.

VIII. *To make a Chalcedon.*

Mingle with the powder of Crystal, a little calcined Silver, and let it stand in fusion twenty four hours.

IX. *To make counterfeit Pearls.*

Mix Calx of Luna and Egg-shells with Leaf silver ground with our best varnish, of which make paste, and having bored them with a Hogs bristle, dry them in the Sun, or an Oven.

X. *To counterfeit a Ruby.*

Take Sal-Alkaly four ounces, Crystal three ounces, Scales of Brass half an ounce, Leaf-gold six grains, mix all, and melt them in a Reverberatory.

XI. *To counterfeit a Carbuncle.*

Mix Crystal with a little Red-lead, putting it into a Furnace for twenty four hours, then take it out, powder and searce it, to which add a little calcined Brass; melt all again, and add a small quantity of Leaf-gold, stirring it well three or four hours, and in a day and night it will be done.

XII. *An Artificial Amethyst.*

Take Crystal one pound, Manganese one drachm, mix and melt them.

Or thus, Take Sal Alkaly three ounces, powder of Crystal four ounces, filings of Brass half an ounce, melt all in a strong fire.

XIII. *An Artificial Jacynth.*

Put Lead into a strong Crucible, and set it into a Furnace, let it stand there about six weeks till it is like glass,

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glass; and it will have the natural colour of a Jacynth not easily to be discerned.

XIV. *An Artificial Chrysolite.*

Mix with melted Cryttal a sixth part of scales of Iron, letting it stand in a vehement fire for three days. *Or thus,* to the mixture of the *Topaze* add a little Copper.

XV. *An Artificial Topaze.*

To Cryttal one pound, add *Crocus Martis* two drachms, Red-lead three ounces, first putting in the Lead, then the *Crocus*.

XVI. *Artificial Corals.*

Take the scrapings of Goats horns, beat them together, and infuse them in a strong *Lixivium* made of *Sal fraxini* for five days: then take it out and mingle it with Cinnaber dissolved in water; set it to a gentle fire that it may grow thick; make it into what form you please, dry, and polish it. *Or thus,* Take *Mini* one ounce, Vermilion ground fine half an ounce, Quick-lime, and powder of calcined Flints, of each six ounces, a *Lixivium* of Quick-lime and Wine, enough to make it thick: add a little Salt, then make it into what form you please, and boil it in Linseed-oyl.

XVII. *An Artificial Emerald.*

Take Brass (three days) calcined in powder, which put again into the Furnace with oyl and a weaker fire; let it stay there four days, adding a double quantity of fine sand or powder of Cryttal: after it is something hard, keep it at a more gentle fire for twelve hours, and it will be a lovely, pleasant and glorious green. *Or thus,* Take fine Cryttal two ounces and an half, *Sal Alkaly* two ounces, *flos aris* infused in Vinegar and strain'd one ounce, *Sal Tartari* one ounce and a half; mix and lute them into a crucible, and put all into a Glass-makers furnace for twenty four hours, and it will

will be glorious indeed. *Or thus,* Take Crystal ten ounces, *Crocus Martis*, and Brass twice calcined, of each one pound, mix and melt them, stirring them well with an Iron rod.

XVIII. *An Artificial Sapphire.*

To melt Crystal put a little *Zaphora* (two drachms to a pound of Crystal) then stir it continually from top to bottom with an Iron hook, till it is well mixed, keep it in the Furnace three days and it is done: yet when it is well coloured, unless it be presently removed from the fire, it will lose its tincture again.

XIX. *Artificial Amber.*

Boil Turpentine in an earthen pot, with a little cotton (some add a little oyl) stirring it till it is as thick as paste, then put it into what you will, and set it in the Sun eight days, and it will be clear and hard, of which you may make beads, hafts for knives, and the like.

XX. *Another way to counterfeit Amber.*

Take sixteen yolks of Eggs, beat them well with a spoon; Gum-Arabick two ounces, Cherry-tree Gum an ounce, make the Gums into Powder, and mix them well with the yolks of Eggs; let the Gums melt well, and put them into a pot well leaded, then set them six days in the Sun, and they will be hard, and shine like glass; and when you rub them, they will take up a Wheat-straw, as other Amber doth.

XXI. *To make yellow Amber soft.*

Put yellow Amber into hot melted wax well scum'd and it will be soft, so that you may make things thereof in what form and fashion you please.

XXII. *Another Artificial Amber.*

Take whites of Eggs well beaten, put them into a vessel with strong white-wine Vinegar, stop it close, let it stand fourteen days, then dry it in the shade, and it will be like to Amber.

XXIII. *Ano-*

XXXIII. *Another Artificial Amber.*

Break whites of Eggs with a sponge, take off the froth, to the rest put Saffron, put all into a glass close stopp'd, or into a Copper or brazen vessel, let it boil in a kettle of water, till it be hard; then take it out and shape it to your liking, lay it in the Sun and anoint it often with Linseed-oyl mixed with a little Saffron; or else being taken out of the Kettle, boil it in Linseed-oyl.

XXIV. *To make white Enamel.*

Take Calx of Lead two ounces, Calx of Tin four ounces, make it into a body with Crystal twelve ounces, roll it into round balls, and set it on a gentle fire for a night, stirring it about with an Iron rod, till it is melted, and it is done.

XXV. *The general preparations and proportions of Mineral colours.*

Plates of Copper must be made red-hot, and then quenched in cold water; of which five or six grains mixed with Crystal and *Sal Tartari* of each half an ounce, and melted, will colour a Sea-green. Iron must be made into a Crocus in a reverberatory fire; of which eight or ten grains will tinge the said ounce of mixture in a Yellow or Hyacinth colour. Silver is to be dissolved in *Aqua fortis*, and precipitated with oyl of Flints, then dulcified with water and dry'd; of this five or six grains to an ounce, gives a mixed colour. Gold must be dissolved in *Aqua Regis*, and precipitated with liquor of Flints, then sweetned and dry'd; of which five or six grains to one ounce gives a glorious Saphirine colour. Gold melted with *Regulus Martis nitrosus* five or six grains to one ounce, gives an incomparable Rubine colour. *Magnesia* in powder only ten or twelve grains to one ounce, makes an Amethyst colour. *Granata* in powder only ten or fifteen grains

grains to one ounce, will tinge the mass into a glorious Smaragdine colour, not unlike to the natural.

XXVI. *Lastly*, Common Copper makes a *Sea green*: Copper of Iron a *Grass-green*: Granats, a *Smaragdine*: Iron, *Yellow* or *Hyacinth*: Silver, *White*, *Yellow*, *Green*, and *Granat*: Gold, *a fair Skie colour*: Wismut, a *common Blue*: Magnesia, an *Amethyst colour*: Copper and Silver, an *Amethyst colour*: Copper and Iron, a *pale green*: Wismut and Magnesia, a *purple colour*: Silver and Magnesia, an *Opal*, and the like.

XXVII. *To make Azure.*

Take Sal-Armoniack three ounces, Verdegriese six ounces, make them into powder, and put them into a glass with water of Tartar, so that it may be somewhat thick, stop the glass and digest in sand in Horse-dung for eight or ten days, and it will be good Azure.

XXVIII. *Another way to make good beyond Sea Azure.*

Beat common Azure with Vinegar, and anoint therewith thin plates of Silver, and put the same over a vessel full of Urine, which set over hot ashes and coals, moving and stirring it till it looks like good Azure.

C H A P. XXXIII.

The ways and manner of Gilding.

I. *To lay Gold on any thing.*

Take Red-lead ground fine, temper it with Linfeed-oyl : write with it and lay Leaf-gold on it, let it dry, and polish it.

II. *To lay Gold on Glafs.*

Take Chalk and Red-lead, of each alike, grind them together, and temper them with Linfeed-oyl : lay it on, and when it is almost dry, lay Leaf-gold on it ; let it dry, then polish it.

III. *To gild Iron with a water.*

Take spring water three pound, Roch-Alom three ounces, Roman Vitriol, Orpiment, one ounce, Verdegriese twenty four grains, Sal-gem three ounces, boil all together, and when it begins to boil, put in Tartar and Bay-salt, of each half an ounce ; continue the boiling a good while, then take it from the fire, strike the Iron over therewith, dry it against the fire, and burnish it.

IV. *To lay Gold on Iron, or other Metals.*

Take liquid Varnish one pound, oyl of Linseed and Turpentine, of each one ounce ; mix them well together : strike this over any Metal, and afterwards lay on the Gold or Silver, and when it is dry polish it.

V. *To Gild Silver, or Brass with Gold water.*

Take Quick-silver two ounces, put it on the fire in a Crucible, and when it begins to smoak, put into it an Angel of fine Gold ; then take it off immediately, for the Gold will be presently dissolved : then if it be

too

too thin, strain a part of the Quick-silver from it, through a piece of Fustian: this done, rub the Gold and Quick-silver upon Brass or Silver, and it will cleave unto it, then put the said Brass or Silver upon quick coals till it begin to smoak, then take it from the fire, and scratch it with a hair brush; this do so long till all the Mercury is rubbed as clean off as may be, and the Gold appear of a faint yellow: which colour heighten with Sal-Armoniack, Bole and Verdegriese ground together and tempered with water.

Where note, that before you gild your Metal, you must boil it with Tartar in Beer or water, then scratch it with a wire brush.

VI. *Another water to gild Iron, Steel, Knives, Swords and Armour with.*

Take Fire-stone in powder, put it into strong red Wine-vinegar for twenty four hours, boil it in a glazed pot, adding more Vinegar as it evaporates, or boils away: into this water dip your Iron, Steel, &c. and it will be black; dry it, then polish it, and you will have a gold colour underneath.

VII. *Another water to gild Iron with.*

Take Salt-peter, Roch-alom burnt, of each half an ounce, Sal-Armoniack an ounce, all being in fine powder, boil with strong Vinegar in a Copper vessel; with which wet the Iron, &c. then lay on Leaf-gold.

VIII. *Another water to gild Iron with.*

Take Roch-Alom, and grind it with boys Urine, till it is well dissolved, with which anoint the Iron, heat it red-hot in a fire of wood coals, and it will be like Gold.

IX. *To gild Books.*

Take Bole-Armoniack four peny weight, Sugar-candy one peny weight, mix and grind them with glair of Eggs, then on a bound Book, (while in the press, after it hath been smeared with glair of Eggs, and

and is dried) smear the said composition, let it dry, then rub it well and polish it: then with fair water wet the edges of the Book, and suddenly lay on the gold, pressing it down with Cotton gently, this done, let it dry, and then polish it exactly with a tooth.

X. Another way of gilding Iron.

Take water three pound, Alom two ounces, Sal-gem three ounces, Roman Vitriol, Orpiment of each one ounce, *flos Aris* twenty four grains; boil all with Tartar and Salt as at the third Section.

XI. To make Iron of the colour of Gold.

Take Linseed-oil three ounces, Tartar two ounces, yolks of Eggs boiled hard and beaten two ounces, Aloes half an ounce, Saffron five grains, Turmeric two grains: boil all in an Earthen vessel, and with the oil anoint Iron, and it will look like Gold. *If there be not Linseed-oil enough, you may put in more.*

XII. A Golden liquor to colour Iron, Wood, Glass, or Bones with.

Take a new laid Egg, through a hole at one end take out the white, and fill up the Egg with Quick-silver two parts, Sal-armoniack finely powdered one part; mix them all together with a Wire or little stick: stop the hole with melted wax, over which put an half Egg-shell: digest in horse dung for a month, and it will be a fine golden coloured Liquor.

XIII. To gild Silk and Linnen.

Take Glew made of Parchment, lay it on the Linnen, or Silk, &c. gently, that it may not sink: then take Ceruse, Bole and Verdegriese, of each alike, mix and grind them upon a stone: then in a glazed vessel mix it with varnish, which let simmer over a small fire, then keep it for use.

XIV. Another of a pure Gold colour.

Take juyce of fresh Saffron, or (for want of it)

P

Saffron

Saffron ground, the best clear Orpiment of each alike: grind them with Goats gall or gall of a Pike (which is better) digest twenty eight days in horse-dung, and it is done.

XV. *To gild on wood or stone.*

Take Bole-Armoniack, Oyl Ben, of each a sufficient quantity; beat and grind them together: with this smear the wood or stone, and when it is almost dry, lay on the Leaf gold; let it dry, then polish it.

XVI. *To gild with Leaf-gold.*

Take leaves of gold, and grind them with a few drops of honey, to which add a little gum-water, and it will be excellent to write or paint with.

XVII. *To gild Iron or Steel.*

Take Tartar one ounce, Vermilion three ounces, Bole-Armoniack, *Aqua-vita* of each two ounces, grind them together with Linseed-oyl, and put thereto *Lapis Calaminaris* the quantity of a halle-nut; and grind therewith in the end a few drops of varnish; take it off the stone, strain it through a linnen cloth (for it must be as thick as honey) then strike it over Iron or Steel, and let it dry; then lay on your Silver or Gold, and burnish it.

XVIII. *To colour Tin or Copper of a gold colour.*

Take Linseed-oyl, set it on the fire, scum it, then put in Amber, Aloes Hepatick, of each alike, stir them well together till it wax thick; then take it off, cover it close, and set it in the earth three days: when you use it, strike the Metal all over with it, with a pencil, let it dry, and it will be of a golden colour.

XIX. *To gild any Metal.*

Take strong *Aqua-fortis*, in which dissolve fine Silver, to which put so much Tartar in fine powder, as will make it into paste, with which rub any Metal, and it will look like fine Silver.

XX. *To*

Chap. 34. Of Paper, Parchment, &c. 219

XX. *To gild so as it shall not out with any water.*

Take Oker calcined, Pumice-stone of each alike, Tartar a little, beat them with Linseed oyl, and five or six drops of varnish, strain all through a linnen cloth, with which you may gild.

CHAP. XXXIV.

Of Paper, Parchment, and Leather.

I. *To make Paper waved like Marble.*

Take divers oyled colours, put them severally in drops upon water, and stir the water lightly: then wet the Paper (being of some thickness) with it, and it will be waved like Marble; dry it in the Sun.

II. *To write golden Letters on Paper or Parchment.*

This may be done by the ninth, tenth and twelfth Sections of the three and thirtieth Chapter of this Book: or write with Vermilion ground with Gum-Armoniack, ground with glair of Eggs, and it will be like gold.

III. *To take out blots, or make black Letters vanish in Paper or Parchment.*

This may be done with Alom-water; or with *Aqua-fortis* mixed with common-water.

IV. *To make Silver Letters in Paper or Parchment.*

Take Tin one ounce, Quick-silver two ounces, mix and melt them, and grind them with Gum-water.

V. *To write with green Ink.*

Take Verdegriese, Litharge, Quick-silver, of each a sufficient quantity, grind and mingle them with Urine, and it will be a glorious green like an Emerald to write or paint with:

Or thus, Grind juyce of Rue and Verdegriese with a little Saffron together; and when you would write with it mix it with Gum-water: *Or thus*, Dissolve Verdegriese in Vinegar, strain it, then grind it with common water, and a little honey, dry it; then grind it again with gum-water, and it is done.

VI. *To write on Paper or Parchment with blew Ink.*

Grind blew with honey, then temper it with glair of Eggs or Gum-water made of Singlase.

VII. *To dye Skins Blew.*

Take berries of Elder or Dwarf-elder, first boil them, then smear and wash the Skins therewith, and wring them forth: then boil the berries as before, in the dissolution of Alom-water, and wet the Skins in the same water once or twice, dry them and they will be very Blew.

VIII. *To dye Skins into a reddish Colour.*

First wash the Skin in water and wring it well: then wet it with the solution of Tartar and Bay-salt in fair water, and wring it again: to the former dissolution, add ashes of Crab-shells, and rub the Skin very well therewith, then wash with common water and wring them out: then wash them with tincture of Madder, in the solution of Tartar, Alom and the aforefaid ashes; and after (if not red enough) with the tincture of Brazil.

IX. *Another way to dye them Red.*

Wash the Skins, and lay them in galls for two hours; wring them out, and dip them into a colour made with *Ligustrum*, Alom and Verdegriese in water: Lastly, twice dye them with Brazil boiled with Lye.

X. *Another way to dye them Blew.*

Take the best Indico and steep it in Urine a day, then boil it with Alom, and it will be good. *Or*, temper the Indico with red Wine, and wash the Skins therewith.

XI. *To*

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XL. To dye Skins Purple.

Take Roch-alom, dissolve it in warm water, wet the Skins therewith drying them again; then take rasped Brazil, boil it in water well, then let it cool; do this thrice: this done, rub the dye over the Skins with your hand, which being dry polish.

XII. To dye Skins of a sad Green.

Take the filings of Iron and Sal-armoniack of each, steep them in Urine till they be soft, with which besmear the Skin, being stretched out, drying it in the shade: the colour will penetrate and be green on both sides.

XIII. To dye Skins of a pure Skie Colour.

For each Skin take Indico an ounce, put it into boiling water, let it stand one night, then warm it a little, and with a brush-pencil besmear the Skin twice over.

XIV. To dye Skins of a pure Yellow.

Take fine Aloes one ounce, Linseed-oil two pound, dissolve or melt them, then strain it; besmearing the Skins therewith, being dry, varnish them over.

XV. To dye Skins Green.

Take Sap-green, Alom-water, of each a sufficient quantity, mix and boil them a little: if you would have the colour darker, add a little Indico.

XVI. To dye Skins Yellow.

Infuse Wold in Vinegar, in which boil a little Alom: Or thus, having dyed them green by the fifteenth Section, dip them in decoction of Privet-berries and Saffron and Alom-water.

XVII. To dye them of an Orange Colour.

Boil Fustick-berries in Alom-water: but for a deep Orange, use Turmerick-root.

XVIII. A Liquor to gild Skins, Metals, or Glass.

Take Linseed-oil three pound, boil it in a glazed vessel till it burns a feather being put into it, then put

to it Pitch, Rozin, dry varnish, or Gum-Sandrach, of each eight ounces, Aloes Hepatica four ounces; put all in powder into the oyl, and stir them with a stick, the fire being a little encreased: if the liquor is too clear or bright, you may add an ounce or two more of Aloes Socratine, and diminish the varnish, so the liquor will be darker and more like Gold. Being boiled, take it, and strain it, and keep it in a Glasse for use: which use with a pencil.

CHAP. XXXV.

Of wood, Horns and Bones.

I. **T**O dye Elder, Box, Mulberry-tree, Pear-tree, Nut-tree of the colour of Ebony.

Steep the wood in Alom-water three or four dayes, then boil it in common oyl, with a little Roman-Vitriol and Sulphur.

Where note, the longer you boil the wood, the blacker it will be, but too long makes them brittle.

II. *To dye Bones green.*

Boil the Bones in Alom-water, then take them out, dry them and scrape them, then boil them in Lime-water with a little Verdegriese.

III. *To dye Wood like Ebony, according to Glauber.*

Distil an *Aqua-fortis* of Salt-peter and Vitriol.

IV. *To make Horns black.*

Vitriol dissolved in Vinegar and Spirit of Wine will make Horns black: so the Snow-white Calx of Silver in fair water.

V. *To make Bones white.*

They

Chap. 35. *Woods, Horns, and Bones.* 223

They are strangely made white by boiling with water and Lime; continually scumming of it.

VI. *To dye Bones green.*

Take white Wine-vinegar a quart, filings of Copper, Verdegriese, of each three ounces, Rue bruised one handful, mix them, and put the Bones therein for fifteen days.

VII. *To dye Wood, Horns, or Bones red.*

First boil them in Alom-water, then put them into tincture of Brazil in Alom-water for two or three weeks: or into tincture of Brazil in Milk.

VIII. *To dye them Blew.*

Having first boiled them in Alom-water, then put them into the dissolution of Indico in Urine.

IX. *To dye them green like Emeralds.*

Take *Aqua-fortis*, and put as much filings of Copper into it, as it will dissolve; then put the Wood, Horns, or Bones therein for a night.

X. *To dye Bristles and Feathers.*

Boil them in Alom-water, and after, while they are warm, put them into tincture of Saffron, if you would have them yellow: or juyce of Elder-berries, if blew: or in tincture of Verdegriese, if green.

XI. *To dye an Azure colour.*

Take Roch-alom, filings of Brasse, of each two ounces, Fish-glew half an ounce, Vinegar, or fair water a pint, boil it to the consumption of the half.

XII. *To soften Ivory and Bones.*

Lay them twelve hours in *Aqua-fortis*, then three days in the juyce of Beets, and they will be tender, and you may make of them what you will: *To harden them again*, lay them in strong white Wine-vinegar.

XIII. *To make Horns soft.*

Take Urine a month old, Quick-lime one pound, calcined Tartar half a pound, Tartar crude, Salt, of

each four ounces, mix and boil all together, then strain it twice or thrice, in which put the Horns for eight dayes, and they will be soft.

XIV. *Another way to make them soft.*

Take ashes of which glafs is made, Quick-lime of each a pound, water a sufficient quantity; boil them till one third part is consumed, then put a feather into it, if the feather peel it is sodden enough, if not, boil it longer, then clarifie it, and put it out, into which put filings of Horn for two dayes; anoint your hand with oyl, and work the Horns as it were paste, then make it into what fashion you please.

XV. *Another way to soften Horns.*

Take juyce of Marubium, Alexanders, Yarrow, Celandine and Radish roots, with strong Vinegar, mix them, into which put Horns, and digest seven dayes in horse-dung, then work them as before.

XVI. *To cast Horns in a mould like as Lead.*

Make a Lixivium of calcined Tartar and Quick-lime, into which put filings or scrapings of Horn, boil them well together, and they will be as it were pap, tinge it of the colour you would have it, and then you may cast it in a mould, and make thereof what fashioned things you please.

XVII. *To make Ivory white.*

If Ivory be yellow, spotted or coloured, lay it in Quick-lime, pour a little water over it, letting it lye twenty four hours, and it will be fair and white.

CHAP. XXXVI.

Of Dying Tarn, Linnen Cloth, and the like.

I. **T**O dye a *fad Brown*.

First infuse the matter to be dyed in a strong tincture of Hermodacts: then in a bag put Saffron and ashes, *stratum super stratum*, upon which put water two parts mixed with Vinegar one part; strain the water and Vinegar through hot, fifteen or sixteen times, in this Lixivate tincture of Saffron put what you would dye, letting it lye a night, then take it out, and hang it up to dry without wringing, which do in like manner the second and third times.

II. *To dye a blew Colour.*

Take *Ebulus* berries ripe and well dried, steep them in Vinegar twelve hours, then with your hands rub them, and strain them through a linnen cloth, putting thereto some bruised Verditer and Alom.

Note, if the blew is to be clear, put more Verditer to it.

III. *Another excellent blew Dye.*

Take Copper scales one ounce, Vinegar three ounces, Salt one drachm; put all into a Copper vessel; and when you would dye, put the said matter into the tincture of Brazil.

IV. *Another excellent blew Dye.*

Take calcined Tartar three pugils, unslak'd Lime one pugil, make a Lixivium, and filtrate it; to twelve or fifteen quarts of the same water put Flanders blew one pound, and mix them well: set it to the fire, till you can scarcely endure your hand in it: then first boil
what

what you would dye in Alom-water, then dry it: afterwards dip it in hot Lye twice or thrice; then put it into the Dye.

V. *A good red Dye.*

Take Brazil in powder, fine Vermilion, of each half an ounce, boil them in Rain-water, with Alom one drachm, boil it till it is half consumed.

VI. *Another excellent good red Dye.*

Take of the *Lixivium* of unslak'd Lime one pint, Brazil in powder one ounce, boil to the half; then put to it Alom half an ounce, keep it warm, but not to boil: then dip what you would dye, first in a *Lixivium* of Red-wine Tartar, let it dry; then put it into the Dye.

VII. *Another very good Red.*

Take Rosset with Gum-Arabick, boil them a quarter of an hour, strain it: then first boil what you would dye, in Alom-water two hours; after put it into the Dye.

VIII. *To make fair Russet Dye.*

Take two quarts of water, Brazil one ounce, boil it to a quart; put to it a sufficient quantity of Grany and two drachms of Gum-Arabick.

IX. *A good Purple Colour.*

Take Myrtle-berries two pound, Alom, calcined Brass, of each one ounce, water two quarts, mix them in a Brass Kettle, and boil half an hour, then strain it.

X. *A Yellow Colour.*

Take berries of purging Thorn, gathered about *Lammas-day*, bruise them, adding a little Alom in powder; then keep all in a Brass vessel.

XI. *Another good Yellow.*

Put Alom in powder to the Tincture of Saffron in Vinegar.

XII. A very good green Colour.

Take Sap-green, bruise it, put water to it, then add a little Alom, mix and infuse for two or three days.

XIII. To take out Spots.

Wash the spots with oyl of Tartar *per Deliquium*, two or three times and they will vanish, then wash with water. Spirit of Wine to wash with is excellent in this case. If they be Ink spots, juyce of Limmons or Spirit of Salt is incomparable, washing often and drying it: so also Castle-sope and Vinegar.

CHAP. XXXVII.

Of the Dying of Stuffs, Cloaths and Silks.

I. *TO make a substantial blew Dye.*

Take Woad one pound, and mix it with four pound of boiling water: infuse it twenty four hours; then dye with it all white colours.

II. *To make a firm black Dye.*

First Wad it with the former Blew: then take of Galls one pound, water sixty pound; Vitriol three pounds: first boil the Galls and water with the Stuff or Cloath, two hours; then put in the Coperas at a cooler heat for one hour: then take out the Cloath or Stuff and cool it, and put it in for another hour, boiling it: Lastly, take it out again, cool it, and put it in once more.

III. *To make an excellent Yellow Dye.*

Take liquor or decoction of wheat-bran (being very clear) sixty pound: in which dissolve three pound of Alom: then boil the Stuff or Cloath in it
for

for two hours : after which take Wold two pounds, and boil it till you see the colour good.

IV. *To make a very good green Dye.*

First dye the Cloth or Stuff yellow by the third Section, then put it into the blew Dye, in the first Section of this Chapter.

V. *To make a pure clear red Dye.*

Take liquor or infusion of Wheat bran (being strained and made very clear) sixty pounds, Alom two pounds, Tartar one pound ; mix and dissolve them, with which boil the Stuff or Cloth for two hours : take it then out, and boil it in fresh Wheat-bran liquor, sixty pounds : to which put Madder three pounds ; perfect the colour at a moderate heat, without boiling.

VI. *To make a very pleasant purple Dye.*

First dye it blew, by the first rule of this Chapter ; then boil it in the former red at the fifth rule hereof : lastly, finish it with a decoction of Brazil.

VII. *To dye Crimson in Grain.*

First boil it in the red at the fifth rule of this Chapter ; then finish it in a strong tincture of Cochinele made in the Wheat-bran liquor aforesaid : Where note, that the vessels in which the Stuff and Liquors are boiled must be lined with Tin, else the colour will be defective. The same observe in Dying of Silks (in each colour) with this Caution, that you give them a much milder heat, and a longer time.

VIII. The Bow-dyers know, that dissolved Tin (that is the solution of *Jupiter*) being put into a Kettle to the Alom and Tartar makes the Cloth attract the colour into it, so that none of the Cochinele is left ; but is all drawn out of the water into the Cloth.

The Spirit of Nitre being used with Alom and Tartar, in the first boiling makes a firm ground, so that they shall

not

not spot nor lose their colour by the Sun, Fire, Air, Vinegar, Wine, Urine or Salt-water.

To enumerate all the great variety of Dyes, or Colours; or offer at an essay to reduce them to a certain method, as it is a labour needles, so it is as altogether impossible, there being infinite colours to be produced, for which (as yet) we have no certain, known or real name: And out of what we have already enumerated in this Chapter, the ingenious (if they please) shall find (by little Practice and Experience) such great variety to be apparent, that should we express the number though but in a very low or mean degree, we could not but be exposed in censure to an Hyperbole even of the highest: Every of the foregoing colours, will alone or singly, produce a great number of others, the first more deep or high; the latter, all of them paler than each other: And according to the variety of colours the matter is of, before it is put into the Dye, such new variety also shall you have again when it comes out; not according to what the colour naturally gives, but another clean contrary to what you (although an Artist) may expect. For if strange colours be dipt into Dyes not natural to them, they produce a forced colour of a new texture, such as cannot possibly be preconceived by the mind of man, although long and continued experience might much help in that case. And if such variety may be produced by any one of those single colours; what number in reason might be the ultimate of any two or three or more of them being complicate or compounded? Now if such great numbers or varieties may be produced, 1. By any one single colour, 2. By being complicate; how should we (without a certain and determinate limitation by denomination or name) ever order such confused, unknown, various,

various, and undeterminate species of things, in any pleasant, intelligible method? Since therefore that the matter (as yet) appears not only hard, but also impossible, we shall commend what we have done to the Ingenuity of the Industrious; and desire that Candor or Favour from the Experienced, with love to correct our Errors; which act or kindness will not only be a future obligation to the *Author*, but also enforce Posterity to acknowledge the same.

The End of the Third Book.

POLY

POLYGRAPHICES

LIBER QUARTUS.

*Containing the Original, Advancement and
Perfection of the Art of Painting: Par-
ticularly Exemplified in the Various
Paintings of the Ancients.*

To which is added the Art of Beautifying of the
Face and Skin, according to the choicest wayes
yet known: the whole Art of Perfuming never
Published till now: A brief contemplation of
Chiromantical Idea's: together with many
other things of excellent Use.

CHAP. I.

Of the Original of these Arts.

THE Original of the Art of Painting was
taken from the Forms of things which do
appear; expressing the same (as Isidorus
Pelusiota saith) with proper colours, imitating the Life;
either

either hollow or swelling, dark or light, hard or soft, rough or smooth, new or old.

Of such things (amongst Vegetables) Flowers yield the greatest variety : of Animals, Man : of things Inanimate, Landships, &c. For this matter of imitation was presented in the chief things only ; for who should learn to imitate all things in Nature ? the greater being attained, the lesser will follow of themselves ; if any shall attempt so great a burthen, two inconveniencies, saith *Quintilian*, will necessarily follow, to wit, *Always to say too much, and yet never to say all.*

II. And this imitation of things seen with the Eye, was much helped by the Idea's of things conceived in the mind, from the continual motion of the imagination.

Wherefore as *Quintilian* saith (lib. 10. cap. 3. of his Institutions of Oratory) " We shall do well to accustom our minds to such a stedfast constancy of conceiving, as to overcome all other impediments by the earnestness of our intencion : for if we do altogether bend this intention upon things conceived, our mind need never take notice of any thing which the Eye sees, or the Ear hears. And therefore those which would profit much, must take care and pains to furnish their minds with all sorts of useful Images and Idea's. " This treasury of the mind " (saith *Cassiodorus* cap. 12. de Anima) is not overladen in haste : if it be once furnished, the Artist shall find upon any sudden occasion, all things necessary, ready at hand ; whereas those which are unprovided shall be to seek. It is like to the Analytical Furniture in *Algebra*, without the knowledge of which, no notable thing can be performed. Now although the imagination may be easily moved, yet this same excellency is not attained in an instant. And without the ability of expressing of the conceived Images,

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Images, all the exercise of the fancy is worth nothing.

III. *These Forms and Idea's were not singly considered; but complicately.*

For whereas nature scarcely ever represents any one thing perfect in beauty (in all its parts) lest it should be said, that she had nothing more to distribute to others: So Artists of old chose out many Patterns, which were absolutely perfect in some of their parts, that by designing each part after that Pattern, which was perfect therein, they might at last present something perfect in the whole. And so when *Zeuxis* intended an exquisite Pattern of a beautiful woman, he sought not for this perfection in one particular body; but chose five of the most well-favoured Virgins, that he might find in them that perfect beauty, which (as *Lucian* saith) must of necessity be but one. And *Maximus Tyrius* saith, you shall not find in haste a body so accurately exact, as to compare it with the beauty of a Statue. And *Proclus* saith, if you take a man brought forth by nature, and another made by Art of Carving, that by nature shall not seem the statelier, because Art doth many things more exactly: To which *Ovid* assents, when that he saith that *Pygmalion* did Carve the Snow-white Image of Ivory, with such a happy dexterity, that it was altogether impossible that such a woman should be born.

IV. *From this manner of imitation did arise the skill of designing; from whence sprang the Arts of Painting, Limning, Washing, Casting, and all others of that kind.*

These Arts in their infancy, were so mean, that the first Artist was forced (as *Alianus* saith lib. 10. cap. 10. of his History) in Painting to write this is an Ox, this a Horse, this a Dog: But as *Tully* saith (in libro

de claris oratoribus) there is nothing both invented and finished at a time. And *Arnobius in libro secundo adversus Gentes* saith, "The Arts are not together
 "with our minds, brought forth out of the heavenly
 "places; but are all found out here on earth, and
 "in process of time, softned, forged, and beautified,
 "by a continual meditation: Our poor and needy
 "life, perceiving some casual things to fall out prof-
 "perously, whilest it doth imitate, attempt, try, slip,
 "reform, and change, hath out of the same assiduous
 "reprehension made up some small pieces of Arts,
 "the which it hath afterwards by study brought to
 "some perfection.

V. The persons who were the first inventers of these Arts are scarcely known (because daily new inventions were added) but those famous Persons who either strove to bring them to perfection, or add to what was already invented, or otherwise were famous in any one particular thing, History has in part informed us of.

The famous *Pausias* was the first that attempted to bring the Art of Painting to perfection. *Apelles* was the first that undertook the expressing of invisible things, as Thunder, Lightning, and the like; the which consideration of these almost impossibilities made *Theophylactus Simocatus* (in *Epist.* 37.) say, that Painters undertake to express such things, as nature is not able to do: And the same *Apelles* had a certain invention and grace, proper to himself alone, to which never any other Artificer ever attained. And although *Zeuxis*, *Apelles*, *Aglaophon*, did none of them seem to lack any thing of, yet they differed very much, and had each of them some peculiar excellency, of which neither of the other two could boast. Here is but one Art of Casting, in which *Myron*, *Polycletus*, *Lysippus*, have been excellent, yet did One very much differ from

from another: *Zeuxis* did surpass all other Artizans in Painting womens bodies: *Lysippus* is most excellent in fine and subtle workmanship: *Polycletus* made excellent Statues upon one Leg: *Samus* did excel in conceiving of Visions and Phantasies: *Dionysius* in Painting of men only: *Polygnotus* most rarely expressed the affections and passions of men: *Antimochus* made noble women: *Nicias* excellent in Painting of women, but most excellent in four footed creatures, chiefly Dogs: *Calamis* made Chariots, with two or four horses; the horses were so excellent and exact, that there was no place left for Emulation: *Euphranor*, the first and most excellent in expressing the dignity, and marks of Heroical Persons; *Arestodemus* Painted Wrestlers: *Serapion* was most excellent in Scenes: *Pyreicus* (inferiour in the Art of Painting to none) painted nothing but Coblers and Barbers: *Ludio* the first and most excellent in Painting Landskips: *Apollodorus*, *Asclepiodorus*, *Androbulus*, *Aleuas*, were the only Painters of Philosophers, &c.

VI. Another reason of the Invention hereof, was from the moving of the passions.

For as *Simonides* saith, (comparing Painting with Posy) Picture is a silent Posy; and Posy is a speaking Picture: Upon the occasion of these words, *Plutarch* saith, The things represented by Painters, as if they were as yet doing, are propounded by Orators, as done already: Painters express in colours and lines, what Poets do in words; the one doth that with the Pencil, which the other doth with the Pen. When *Latinus Patricus* had made a full description of the miserable end of the wicked *Maximus*, he calls upon all the Painters to assist him: Bring hither, bring hither you pious Poets (saith he) the whole care and study of your tedious nights: Ye Artificers also, despise the vulgar

Argument of Ancient Fables ; these, these things deserve better to be drawn by your cunning hands : let the Market-places and Temples be filled with such Spectacles ; work them out in Ivory ; let them live in colours ; let them stand in Brass ; let them exceed the price of precious Stones. It doth concern the security of all Ages, that such things might be seen to have been done, if by chance, any one filled with wicked desires, might drink in innocency by his Eyes, when he shall see the (horrid and deplorable) Monuments of these our times. And Gregory Nyssen, upon the Sacrificing of Isaac saith, *I often saw in a Picture the Image of this Faët, upon which I could not look without tears ; so lively did Art put the History before my Eyes.*

VII. *The Egyptians were the first inventers of Painting : The Greeks brought it (out of its rudeness) to proportion : The Romans adorned it with colours : The Germans (following them) made their works more durable by painting in Oyl : of whom the English, Dutch, Italian, and French, are become imitators.*

It is reported that the *Grecians* were the first painters, and that their colours were (in the infancy thereof) only white and black : but it appears more with reason and truth, that the invention thereof should be ascribed to the *Egyptians*, who (before the invention of Letters) signified their conceptions by *Hieroglyphicks* of Figures, Cyphers, Characters, and Pictures of divers things, as *Birds, Beasts, Insects, Fishes, Trees, Plants*, and the like, which by Tradition they transfer'd to their Children ; so they made the *Falcon* to signifie Diligence, Strength, and Swiftnes : the *Bee* a King ; its *Honey*, Mildnes ; its *Sting*, Justice : a *Serpent* (tail in mouth) the revolution of the Year : the *Eagle*, Envy ; the *Earth*, a labouring Beast ; a *Hare*, Hearing,

Hearing, &c. Now our bare learning to imitate is not enough; it is requisite that since we are not first in invention, we should study rather to outgo than to follow. *If it were unlawful (saith Quintilian) to add any thing to things invented, or to find out better things, our continual labour would be good for nothing; for it is certain that Phydias and Apelles, have brought many things to light, which their Predecessors knew nothing of. Apelles did all things with compleatness, Zeuxis, with an inestimable grace: Protogenes with an indefatigable diligence: Timanthes with a great deal of subtilty and curiosity: Nicophanes with a stately magnificence.* Now to attain to these kind of Excellencies, it is necessary to have recourse to variety of great Masters, that something out of the one, and something out of the other, may be as so many ornaments to adorn our works; and as so many steps to lead us on to the door of perfection.

VIII. *About the time of Philip King of Macedon, this Art began to flourish: growing into great estimation in the days of Alexander and his Successors: from thence through all the series of time even to this day, it hath received by degrees, such wonderful advancements that it may be now said, it is arrived at perfection.*

For without doubt there is a perfection of Art to be attained, and it is as possible that I, or thou, or he, may as well attain it, as any body else, if we resolve to strive, and take pains, without fainting, or fear of despair. And since the Art of Painting is (as *Socrates* saith) the resemblance of visible things, the Artist ought to beware that he abuses not the liberty of his imagination, in the shapes of monstrous and prodigious Images of things not known in nature; but as a true lover of Art, prefer a plain and honest work (agreeing with nature) before any phantastical and conceited device whatsoever.

IX. *Lastly, that from Time, Form, Magnitude, Number, Proportion, Colour, Motion, Rest, Scituation, Similitude, Distance, Imagination, and Light, in a single and complicate consideration, this Art hath its essence or being, and at last had by the help of industrious and unwearied minds, its Original production, and manifestation.*

Light is that only thing, without which all those other things from which this Art springs, would be useless; without which the Art it self cannot be. "It is (as *Saunderson* saith) the heavens off-spring, the eldest daughter of God, *fiat lux*, the first days Creation: it twinkles in a Star, blazes in a Comet; dawns in a Jewel, dissembles in a Glow-worm; contracts it self in a Spark, rages in a Flame, is pale in a Candle, and dyes in a Coal. By it the sight hath being, and the imagination life, which comprehends the universality of all things without space of place: the whole Heavens in their vast and full extent, enter at once through the apple of the Eye, without any straitness of passage: the sight is a sense, which comprehends that, which no other sense is capable of; it judgeth and distinguisheth between two contraries in an instant, it considers the excellency and beauty of every object: the spangled Canopy of Heaven by night, the wandering Clouds by day, the wonderful Form of the Rain-bow, the glorious matutine appearance of *Phœbus*; the meridional exaltation, the golden rays which surround him, the mutability of his shadows, his vespertine setting: the lofty tops of Mountains, unaccessible and ridgy Rocks, profound Valleys, large Plains, which seem to meet Heaven, green Trees, and pleasant Groves, delightful Hills, sweet and flowery Meadows, pleasant Streams, springing

Foun-

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"Fountains, flowing Rivers, stately Cities, famous
"Towers, large Bridges, magnificent Buildings, fruit-
"ful Orchards and Gardens, shapes of living Crea-
"tures, from the Elephant to the Ant, from the Eagle
"to the Wren, and from the Whale to the Shrimp,
"the wonderful forms of Insects, the marching of
"Armies, the besieging and storming of Garisons,
"the insolencies of rude People, and flight of the
"Distressed, the desolation and depopulation of King-
"doms and Countries, the sailing of Ships, terrible Sea-
"fights, great beauty of Colours, together with thou-
"sands of other things, all which it digests, and Mar-
"shals in ample Order, that when occasion may be, it
"may exert its store, for the benefit, advantage, ad-
"vancement, and perfection of Art.

CHAP. II.

Of the farther progress of these Arts.

I. **A**S God Almighty (who is the Author of all wisdom) was the first institutor hereof, so also was he the promulgator, by whom these Arts have made progression in the world.

Certainly, saith *Philostratus*, Picture is an invention of the Gods, as well for the painted faces of the Meadows adorned with Flowers, according to the several Seasons of the year; as for those things, which appear in the Sky. What wonderful Eloquence is this! that in so few words, this Philosopher should clear so great a point. But what saith *Gregorius Nyssenus*? Man, saith he, is an earthen Statue: and *Suidas* in *Oratione prima de Beatitudinibus*; speaking of Adam, saith,

Q 4

saith, This was the first Statue, the Image named by God, after which all the Art of Carving used by men receiveth directions : *Lot's Wife* was another, turned into a durable Pillar of Salt, of whom *Prudemius* (in *Harmartigenia*) saith, she waxed stiff, being changed into a more brittle substance, she standeth Metamorphosed into Stone, apt to be melted, keeping her old posture in that Salt-stone Image ; her comeliness, her ornaments, her forehead, her eyes, her hair, her face also (looking backward) with her chin gently turned, do retain the unchangeable Monuments of her Antient offence : and though she melteth away continually in Salt sweat ; yet doth the compleatness of her shape suffer no loss by that fluidity ; whole droves of beasts cannot impair that savoury stone so much, but still there is liquor enough to lick, by which perpetual loss, the wasted skin is ever renewed. To these let us add the pattern of the *Tabernacle* shewed unto *Moses* upon Mount *Sinai* : The *Brazen Serpent* made by the express command of God : The *Pattern of the Temple* (which *David* gave unto *Solomon*) after the form which God made with his own hand : *Ezekiel's* portraict of *Jerusalem* with its formal Siege upon a Tile by express command from God also : The *Brazen Statue* of our Lord *Jesus Christ* erected by the woman healed of the bloody Issue, as is mentioned by *Photius*, and *Asterius* Bishop of *Amasa*, and other Ecclesiastick Writers : The Picture also of our Lord made without hands, as it is related by *Damasceus Cedrenus* and others : The Picture of *Christ* in a Napkin or Towel, sent by our Lord himself, unto *Angarus* King of *Edessa* ; together with many more too tedious here to relate.

II. By vertue of this divine hand it was that many Artists of old attained to a certain kind of perfection in these Arts.

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We will only refer the proof of this to the examples in the 31 of *Exodus* of *Bezaleel* and *Aholiab*; of whom God himself witnesseth, that he called them by name to make the *Tabernacle*; and filled them with his spirit, not only to devise curious works in *Gold*, in *Silver*, in *Brass*, and in *Silk*; but also gave them skill to teach others the same.

III. *Nature also hath not been idle, but hath acted a Master-piece herein.*

To pass by the glory of Flowers, the excellent comeliness of beasts (as in the spots of *Leopards*, tails of *Peacocks*, and the like) I will only remark the same of a Gem, which *Pyrrhus* (who made War with the *Romans*) had, of which *Pliny* in *lib. 34. cap. 1.* of his natural History, reports, that it being an *Agath* had the nine *Muses* and *Apollo* holding of a *Lute* depicted therein; the spots not by Art, but by nature, being so spread over the stone, that each Muse had her peculiar mark. See *Gasseri* *cap. 5.*

IV. *The care of Parents in the Education of their Children, was another reason of the progress hereof.*

The *Grecians*, saith *Aristotle* in *cap. 3. lib. 8.* of his *Politicks*, did teach their children the Art of *Painting*; and *Plutarch* saith, that *Paulus Emilius* had *Sculptors* and *Painters* amongst the Masters of his children as well as *Philosophers* and *Rhetoricians*; and *Pliny* saith, that by the Authority of *Pamphilus*, this Art hath been ranked among the liberal Sciences, and that only Free-born children should learn it. And *Galen* enumerating several Arts as *Physick*, *Rhetorick*, *Musick*, *Geometry*, *Arithmetick*, *Logick*, *Grammer*, and knowledge of *Law*; add unto these, saith he, *Carving* and *Painting*. And as the *Grecians* were the first, that taught their children these Arts, so also they provided betimes for them choice Masters.

V. *These*

V. *These Masters by their carefulness and vigilancy, not deceiving those that put their trust in them, became main Pillars of these Arts, and propagated them to Posterity, which by the addition of considerable gifts and rewards had an honourable esteem in the world.*

Their care was manifest in laying down solid Principles of Art; of which *Quintilian* in cap. 2. lib. 12. of his Institutions of Oratory saith, though vertue may borrow some forward fits of nature, yet she must attain to perfection by doctrine. Their vigilancy was seen in watching, to apprehend their Scholars capacities, that they might suit themselves accordingly; as in *Tully's* instance of *Isocrates*, a singular good teacher, who was wont to apply the spur to *Ephorus*, but the bridle to *Theopompus*; And their reward was eminent, as *Pliny* noteth in *Pamphilus* his School, out of which *Apelles* and many other excellent Painters came, who taught no body under a Talent (which is about 175 pound sterling) thereby the better to maintain the Authority of Art.

VI. *Their practice exactly agreed with their precepts.*

As with *Seneca*, that labour is not lost, whose experiments agree with precepts; so with *Quintilian*, those examples may stand for testimonies: And it was the practice of Painters of old, as *Galen* witnesseth concerning *Polycletus*, who hath not only set down in Writing the accurate precepts of Art; but also that he made a Statue according to the rules of Art contained in those precepts.

VII. *These precepts which they taught their Scholars, they delivered in writing, that they might ever accompany them wheresoever they went.*

Apelles gave the precepts of this Art to his disciple *Perseus* in writing, as *Polycletus* did to his; besides innumerable others now in being too tedious here to recite.

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recite. The like did these following, *Adaus, Mylenaus, Alctas, Alexis* the Poet, *Anasimenes, Antigonus, Aristodemus, Carinus, Artimon, Callixenus, Christodorus, Democritus, Ephesus, Dæris, Eupherion, Euphranor, Isthmius, Hegesander Delphicus, Hippias Eleus, Hysicrates, Iamblicus, Juba Rex Mauritaniae, Malchus Bizantius, Melanthius, Menachmus, Menetor, Pamphilus, Polemon, Porphyrius, Praxiteles, Protogenes, Theophanes, Xenocrates*, and many others, the chief of whole works are now lost.

VIII. *As Arts came now into estimation, so at length Laws were established for their preservation; and punishments for their prevarication.*

The beginning of these Laws was first at *Argos, Ephesus, Thebes* and *Athens*, as also in *Egypt*, where a workman (saith *Diodorus Siculus*) is fearfully punished, if he undertake any charge in the Commonwealth, or meddle with any Trade but his own: the which Law, saith *Herodotus*, the *Lacedæmonians* did also approve of. By means of which Laws it was, that the Artists of those Nations attained to such a perfection of Art, as we shall hereafter relate.

IX. *The fervent desire and love of emulation to excel others; the commendable simplicity of Art; together with the content and satisfaction of doing something well, gave a large progress towards the advance of Art.*

It was nobly said of *Scipio Africanus*, that every magnanimous spirit compares himself, not only with them that are now alive; but also with the famous men of all ages; whereby it appears that great wits are always by the sting of emulation, driven forwards to great matters; but he that by too much love of his own works, compares himself with no body, must needs attribute much to his own conceits. Dost thou desire the glory of swiftness? saith *Martial* (in *Epigr.*

36. *lib. 12.* strive to out-go the *Tyger*, and the light *Ostrich*; it is no glory at all to out-run *Asses*. This *emulation* is the force of great wits, whereby our imitation is provoked sometimes by envy, and sometimes by admiration, whereby it falls out, that the thing we earnestly seek after, is soon brought to some height of perfection; which perfection consists in exact imitation, according to the simplicity of Art, and not in gaudy appearances, which adorns the shadows much more than ever nature adorned the substance. This imitation of the life gave the *Artizan* fame; which fame quickened his aspiring thoughts, adding more fuel to the flames, till such time, as he brought forth a most absolute work, whereby he conceived a joy, content and satisfaction, as durable as the work it self, upon which he now conceived himself a happy man, and through a just affiance of his vertues knows himself to be lifted up above the reach of envy, where he stands secure of his fame, enjoying in this life (as if he were now consecrated unto Eternity) the veneration that is like to follow him after his death; thus an honest *emulation* and *confidence*, bringing forth works of general applause, procureth unto its author an everlasting Glory. Now what a comfortable thing is this, to have a fore-feeling of what we hope to attain to?

X. *Another reason of the augmentation of these Arts, was the manifold uses thereof among men, either for good or evil purposes.*

As in natural Sciences, where words come short, a little Picture giveth us the knowledge of Beasts, Birds, Fishes, and other forms, as well inanimate as animate: In the *Tacticks*, how should a General know how to set his men in array, unless he try the case by design or delineation? so in *Architecture* to pourtray Platforms
after

after any fashion, and to work out the Patterns of high and mighty buildings in a little wax, keeping in so small an example the exact proportion of the greater Structure: In *Geometry* the exactness of Lines, Angles, Surfaces and Solids: In *Botanologia*, the exact shapes of Herbs, Plants and Trees: In *Zoologia*, the shapes of all living creatures: In *Anthropologia*, the exact description of all the parts of mans body inward and outward: In *Chymia*, the forms of all Chymical vessels and operations: In the lives of illustrious men and Princes, to express their forms and shapes to the life, that age might not prevail against them, deserving thereby (as *Varro* saith) the envy of the Gods themselves: In *Geography*, to describe in small Maps Kingdoms, Countreys, and Cities, yea, the whole World: In *Policy*, as *Michal* in saving her husband *David*, *Ptolomans* in the Image of *Alexander*, which he willingly let *Perdiccas* catch from him, supposing it to have been the body it self, thereby avoiding much blood-shed: *Cyrus* his wooden *Persians* in the Siege of *Sardis*, by which the Towns-men being frightened, yielded the City: *Epaninondas* at *Thebes* by the Image of *Pallas* did wonders: *Amasis* King of *Egypt*, his golden Image made of the Basin, in which his feet used to be washed, which the *Egyptians* religiously worshipped, whereby he brought them to affect him being now a King, who was of an ignoble and base Parentage; the wooden *Elephants* of *Perseus* King of *Macedonia*, with which he wonted his horses, that they might not be frightened in time of Battel. The Ornaments of Temples, Market-places and Galleries, places both publick and private. *Julius Caesar's* Image in wax, hideous to look to, for twenty three gaping wounds he received, did mightily stir up the *Romans* to revenge his death. *Worthy men* which had deserved well of the world, had their

their memories conserved with their Images; by which all those that aspire to goodness, and to follow their steps, are likewise filled with hope. The *Athenians* have erected unto *Aesop* a most goodly Statue, saith *Phaedrus*, and have set a contemptible slave upon an everlasting base, that all might understand, how the way of honour lieth open to every one; and that glory likewise doth not so much follow the condition of our birth, as the virtues of our life. *Berosus* excelled in *Astrology*, wherefore the *Athenians* for his divine Prognostications, erected him a Statue with a golden Tongue, set up in their publick Schools, as *Pliny* saith, lib. 7. cap. 37. Publick Libraries were furnished also with Golden, Silver, and Brasse Images of such, whose immortal souls did speak in those places. The provocations of vices have also augmented the Art; it hath been pleasing to engrave wanton lusts upon their cups; and to drink in *Ribauldry* and *Abominations*, as *Pliny* saith in the Proem of his 33. Book.

XI. The use therefore of these Arts extending it self so universally to all intents both in war and peace; it came to pass that Artificers were honoured by all sorts of men, which themselves perceiving, did still endeavour to encrease this enjoyed favour by a daily advance of their skill.

By Kings they were honoured; for *Demetrius*, whilst at the Siege of *Rhodes*, came to *Protogenes*, leaving the hope of his Victory to behold an Artificer. *Alexander* the Great came also to *Apelles* his Shop, often accompanied with many Princes. It was his will that none but *Polycletus* alone, should cast his Statue in Brasse, that none but *Apelles* alone should paint him in Colours, that none but *Pyrgoteles* alone should Engrave him. The estimation of the Artists were also understood from the esteem and high rates their works were prized

prized at; a picture of *Bularchus* a Painter, was valued at its weight in Gold by *Candaules* King of *Lydia*: *Aristides* was so singular in his Art, that it is reported of King *Attalus* that he gave an hundred Talents (which is about seventeen thousand and five hundred pounds sterling) for one of his Pictures. As much had *Polyclethus* for one of his. *Apelles* had for painting the Picture of *Alexander* the Great, three thousand and five hundred pounds given him in golden Coin. *Cesar* payed to *Timomachus* eighty Talents, (about fourteen thousand pounds sterling) for the Pictures of *Ajax* and *Medea*. Many more examples we might produce, but these may suffice; at length no price was thought equal to their worth: so *Nicias* rather than he would sell his Picture called *Necyia* to King *Attalus*, who proffered him sixty Talents, (worth near eleven thousand pound sterling) bestowed it as a Present upon his Country.

XII. Art meeting with such Successes, created a boldness in Artificers, to attempt even the greatest matters.

The great Colosses of the Antients may serve here for an example; *Zeuxis* above all the rest, hath been admired for his boldness: *Euphranor* also excelled *Parrhasius* in this kind, in that the *Thesens* of the one so infinitely excelled the *Thesens* of the other. So great an excellency of Spirit arose in the old Artificers, as not to be daunted by the authority of those, who were like to censure their works: it was a great mark they aimed at, to avoid a prosperous shame or fear. And this they accomplished by taking care, not only to give them content, who must of necessity be contented with the work; but also that they might seem admirable unto them which may judge freely without controul. So they heeded to do well in the opinion of accurate and judicious spectators, rather than to do

do that which liked themselves. And therefore whatsoever is dedicated unto posterity, and to remain as an example for others, had need be well done, neat, polished, and made according to the true rule and law of Art, forasmuch as it is likely to come into the hands of skilful Artificers, judicious censurers, and such as make a narrow scrutiny into every defect. But as it is impossible to attain to an excellency, or height of any thing without a beginning, so do the first things in going on of the work seem to be the least; the height of Arts, as of Trees, delighteth us very much, so do not the roots; yet can there be no height without the roots. And therefore we shall find that a frequent and continual exercise, as it is most laborious, so it is most profitable; seeing *nature doth begin, hope of profit doth advance, and exercise doth accomplish the thing sought after.* In sum, by doing quickly, we shall never learn to do well; but by doing well, it is very likely we may learn to do quickly. To this speedy and well doing there belongeth three things, viz. to add, to detract, and to change. To add or detract, requireth less labour and judgement; but to depress those things that swell, to raise those things that sink, to tie close those things which are scattered, to digest things that are without order, to compose things that are different, to restrain things that are insolent, requireth double pains: for those things may be condemned, which once did please, to make way for inventions not yet thought of. Now without doubt, the best way for emendation is to lay by the design for a time, till it seem unto us as new, or anothers invention; lest our own, like new births, please us too much.

XIII. Lastly, *That which gave the greatest and as it were, the last step towards the augmentation of Art, was that*

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that free liberty which Artizans gave every one; to censure, to find fault with their works, and to mark their defects.

It was the opinion of *Seneca*, that many would have attained unto wisdom, if they had not conceived themselves to be wise already. When *Phidias* made *Jupiter* for the *Eleans*, and shewed it, he stood behind the door listning what was commended, and what discommended in his work: one found fault with the grossness of his nose, another with the length of his face, a third had something else to say: now when all the spectators were gone, he retired himself again to mend the work; according to what was liked of the greater part; for he did not think the advice of such a multitude to be a small matter, judging that so many saw many things better than he alone, though he could not but remember himself to be *Phidias*. But yet Artificers did not from hence admit their judgments generally in every thing, but they followed their directions only in such things as did belong to their Profession. As when *Apelles* made a work, he exposed it in a place where all that passed by might see it; hiding himself in the mean time behind the Picture, to hear what faults were marked in his works, preferring the common people before his own judgment. And he is reported to have mended his work, upon the censure of a Shoo-maker, who blaming him for having made fewer latches in the inside of one of the Pantoffles, than of the other: the Shoo-maker finding the work the next day mended according to his advice, grew proud; and began to find fault with the Leg also; whereupon *Apelles* could not contain himself any longer, but looking forth from behind the Picture, *Ne sutor ultra crepidam*, bid the Shoo-maker not go beyond his Last; from whence at last came

R that

that Proverb. He is the best man that can advise himself what is fit to be done; and he is next in goodness, that is content to receive good advice: but he that can neither advise himself, nor will be directed by the advice of others, is of a very ill nature.

CHAP. III.

Of the Consummation or Perfection of the Art of Painting.

I. **A**S Invention gave way to the advancement of Art, so the advancement of the same made way for its Perfection.

The Invention arose from the appearance of things natural, conceived in *Idea's*, as we have abundantly signified (in the first Chapter of this Book) the Advance from the bringing of those *Idea's* to light through practice (by Chap. 2.) from whence arose things very excellent for greatness: very good for their usefulness, choice for their novelty, and singular for their kind.

II. *Ease of Invention, Plenty of Matter, and Neatness of Work*, were steps by which Art was consummated. For *ease of Invention gave Encouragement, Plenty of Matter gave Formation, and Neatness gave Delight*, all which so conspired together, to put so much of emulation into the Artificer, to undertake, or endeavour to do those things, which in their kind might never after be exceeded: this indeed was their aim of old, which although the antients of this Art could never attain unto, yet did they make such way, that some of their followers have done those things, which never any after them could ever mend, nor themselves scarcely come

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come near. Easie invention springs out of a great and well rooted fulness of learning; by being conversant in all sorts of studies, having familiarity with Antiquities; the knowledge of innumerable Historical and Poetical narrations, together with a thorough acquaintance with all such motions and Idea's of the mind, as are naturally incident unto men: for the whole force of this Art doth principally consist in these things, nothing bearing a greater sway in the manifold varieties of *Painting*.

III. *It was the opinion of Pamphilus (the master of Apelles) that without the knowledge of Arithmetick, Geometry, and the Opticks, this Art could not be brought to Perfection.*

The examples of *Phidias* and *Alcamenes* is pertinently brought here: The *Athenians* intending to set up the Image of *Minerva* upon a high Pillar, employed those two Workmen, purposing to chuse the better of the two; *Alcamenes* (having no skill in *Geometry* nor the *Opticks*) made her wonderful fair to the eye of them that saw her near. *Phidias* contrariwise (being skilful in all Arts, chiefly the *Opticks*) considering that the whole shape would change according to the height of the place, made her lips wide open, her nose somewhat out of order, and all the rest accordingly, by a kind of resupination: the two Images being brought to view, *Phidias* was in great danger to have been stoned by the multitude, until at length the Statues were set up; where the sweet and excellent strokes of *Alcamenes* were drowned, and the disfigured distorted hard-favouredness of *Phidias* his work vanished (and all this by the height of the place;) by which means *Alcamenes* was laughed at, and *Phidias* much more esteemed. Of like perfection is *Amulius* his *Minerva*; the Image of *Juno* in the Temple of the

Syrian goddess; the head of *Diana* exalted at *Chios*, made by *Bupalus* and *Anthermus*, *Hercules* in the Temple of *Antonia*, &c. An Artificer, saith *Philostratus* in *Proemio Iconum*, must understand the nature of a man thoroughly, to express all his manners, guise, behaviour, &c. he must discern the force in the constitution of his cheeks, in the turning of his eyes, in the casting of his eye-brows; in short, he must observe all things which may help the judgement; and whosoever is thus furnished will doubtless excell, and bring things to perfection; he then may easily paint a mad man, an angry man, a pensive man, a joyful man, an earnest man, a lover, &c. in a word, the perfection of whatsoever may possibly be conceived in the mind.

IV. Continual observation of exquisite pieces (whether Artificial or Natural) nimble conceptions, and tranquillity of mind, are great means to bring Art to Perfection.

The works of the Antients could never have been so exquisite in the expression of Passions, but by these means. How perfectly did *Zeuxis* paint the modest and chaste behaviour of *Penelope*; *Timomachus* the raging mad fit of *Ajax*; *Silanius* the frowardness of *Apollodorus*; *Protogenes* the deep pensiveness of *Phidias*; *Praxiteles* the rejoycings of *Phryne*; *Parrhasius* a boy running in Armour; and *Aristides* his *Anaparnomenos* dying for love of his Brother? *Bodinus* his Image of *Hercules* is of the same nature: *Themistius* shews us the true Image of feigned friendship; *Agellius* a most lively Image of Justice; *Apelles* an admirable Picture of Slander; thousands of examples more might be drawn out of antient Authors to approve these things, if these may be thought not sufficient.

V. This Perfection also lyeth in the truth of the matter, the occasion thereof, and discretion to use it.

The most antient and famous Painters did make much

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much account of *Truth*; and had rather lose the neatness and glory of their pieces, than to endanger the truth of their story; which indeed is the great commendation of a Picture, for as much as *Lucian* saith, That nothing can be profitable but what proceeds from truth. *Occasion* also is a great matter; the Picture of *Bacchus* may here serve for an excellent example, whose passion of love was so clearly expressed therein; casting aside his brave apparel, Flowers, Leaves, Grapes, &c. Now in representing things truly according to the occasion, *discretion* ought to be your guide; for as in Tragedies, so also in Pictures all things ought not to be represented; let not *Medea* (saith *Horace in libro de Arte*) Murder her own children in the presence of all the people; let not the wicked *Atreus* boil humane flesh openly; there are doubtless many things, which had better be left out, though with some loss of the story, than with the loss of modesty; wanton, unlawful and filthy lusts (though they may gain the vain title of wit, yet) they diminish not only the estimation of the workman, but also the excellency of the work, debarring it of perfection. Precepts help Art much, in propounding unto us the right way; but where they fail, our wits must supply, by warily considering what is decent and convenient; for this Art requireth studious endeavours, assiduous exertitions, great experience, deep wisdom, ready counsel, veracity of mind, diligent observations, and great discretion.

VI. *To the former add Magnificence, which gives Authority to things excellent.*

Great minded men are most of all given to entertain stately conceits; therefore an *Artizan* ought to be of a *magnanimous* nature; if not, yet that at least he ought with a determined resolution to aim at *magnificent*

nificent things. So it seems that nature did dispose *Nicophanes* to a high strain of invention; *Nicophanes* (saith *Pliny*, lib. 35. cap. 10.) was gallant and neat, so that he did paint *Antiquities* for *Eternity*, whereby he was commended for the magnificence of his work, and gravity of his Art. Such *Artificers* therefore as do bring any thing to perfection, must be of an exceeding great spirit, and entertain upon every occasion great thoughts, and lofty imaginations; by this means they shall gain an everlasting fame; but this is impossible (saith *Longinus*) for any who busie the thoughts and studies of their life about vile and slavish matters, to bring forth any thing which might deserve the admiration of succeeding ages. If any *Artizan* be not naturally of so great a spirit, let him help himself by the reading of *History* and *Poesie*; *History* cannot but inspire a *magnanimous Spirit*, when she represents to us so many rare exploits, and the examples of so many great noble and valiant souls, who *throughout all ages*, in the midst of most eminent dangers, have demonstrated their virtues and spirits not only to those present, but *all succeeding times*. *Poesie* also being of a haughty and lofty stile, doth much enlarge the mind, and from thence many excellent things are brought: The much admired *Elean Jupiter* which *Phidias* made, himself confessed to be formed after the Image of *Jupiter* described in *Homer*. From the same Poet did *Apelles* paint the Image of *Diana* among the sacrificing Virgins. It is not the present age, but the sacred memory of all posterity, which gives unto us a weighty and durable crown of Glory.

VII. *Exact Analogy or proportion, not only advanced Art, but also brought it a degree nearer Perfection.*

Philostratus calls it *Symmetrie*, some *Analogy*, others *Harmony*; this is the appellation of the *Greeks*; what the

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the Latines called it scarcely appears (as *Pliny* saith *lib. 34. cap. 8.*) yet words equivalent in power thereto are found, as *Congruence*, *equality*, and *Tully* (*libro primo de Officiis*) calls it *Agreement* and *apt composition*; *Vitruvius*, *Commodulation*; *Agellius* calls it a *natural competence*; *Quintilian* approves the word *Proportion*; by which saith *Plutarch* beautiful things are perfected: it is one of those things which the most High used in the fabrication of the world, (*Wisd. 11. 20.*) *He hath disposed all things in measure and number and weights.* The first giver of *Symmetrie* or *Analogy* was *Parrhasius*; *Polycletus* was a diligent observer thereof, *Asclepiodorus*, an exact practiser thereof, whose admirer was *Apelles*, who esteemed it to proceed out of some perfections in an *Artificer* surpassing in Art, and which is most apparent in naked and undisguised bodies. *Strabo* saith, that *Phidias* exactly observed this proportion in the Image of *Jupiter Olympicus* sitting. The same *Phidias*, as *Lucian* reports, could exactly tell upon the first sight of a *Lions* claw, how big a *Lion* he was to make in proportion to the same claw. *Lineal Picture* is the foundation of all imitation, which if it be done after the true rules of proportion, will lively represent the thing delineated: this is a perfection in kind, which yet cannot be compared to the perfection of a coloured Picture.

VIII. This point of Perfection was further advanced by the exquisiteness of Colouring.

The perfection of Colouring ariseth from a certain right understanding of each colour severally, without which it is impossible to mix any thing rightly, as *Hermogenes* saith. The *Greeks* (as *Porphyrius*) call this mixtion of colours, *corruption*, which word *Plutarch* also used when he said that *Apollodorus* (who first found out the corruption or way of shadowing in colours)

lours) was an *Athenian*. *Lucian* calls it *confusion*, where he saith, that by the Art of Painting, images were made by a moderate *confusion* of Colours, as White, Black, Yellow, Red, &c. by which, as *Philostratus* saith in *Proæmio Iconum*, we know how to imitate the diversities of looks in a mad-man, in a sad or cheerful countenance; the colour of the eye, as brown, gray or black; of the hair, as golden, ruddy, bright, or flaxen; of the cloaths, as cloth, leather, or armour; of places, as chambers, houses, forests, mountains, rivers, fountains, &c. this is done by the accurate mixtion, due application, and convenient shadowing, as *Lucian* saith in *Zeuxide*; through the observation of light, shadow, obscurity and brightness, as *Plutarch* will have it. For this cause, saith *Johannes Grammaticus*, is a white or golden Picture made upon a black ground. *Light* is altogether necessary, seeing there can be no shade without it: light and shadow cannot subsist asunder, because by the one, the other is apparent, for those things which are enlightned seem to stick out more, and to meet the eyes of the beholder; those which are shaded to be depressed. This same of light and shadow, *Nicias* the *Athenian* did most accurately observe; as also *Zeuxis*, *Polygnotus*, and *Euphranor*, as *Philostratus* saith in *libro secundo de vita Apollonii*, cap. 9. *Apelles* painted *Alexander*, as if he held lightning in his hand, *Philostratus* observed the same in the picture of an Ivory *Venus*, so that one would think it an easie matter to take hold of her; *Pausias* arrived to such an excellency in this, as scarcely any after could attain unto, as in the painted Ox, saith *Pliny*, which he made inimitable. *Obscurity* or *Darkness* is only the duskiness of a deeper shadow, as *brightness* is the exaltation of light: if white and black be put upon the same superficies, the white will seem nearest, the black farther off: this being

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being known to make a thing seem hollow, as a ditch, cave, cistern, well, &c. it is coloured with black or brown; and so much the blacker, so much the deeper it seems; extream black representing a bottomless depth; but to make it rise, as the breasts of a maid, a stretched out hand, &c. there is laid round or on each side so much black or brown, as may make the parts seem to stick out by reason of the adjacent hollowness; *brightness* is sometimes used for necessity, but generally for ornament, (as in the pictures of *Angels, Gems, Armour, Flame, Flowers, Gold, and the like*) the which is made alwayes with a mixture of light; which mixtion Painters call *Harmoge*, but is nothing else save an undiscernable piece of Art, by which the *Artizan* stealingly passeth from one colour into another, with an insensible distinction; this *Harmoge* is most perfect in the *Rainbow*, which containing evident variety of Colours, yet leaves them so indistinguishable, as that we can neither see where they begin, nor yet where they end, as *Boethius* observes in *libri quinti de arte musica capite quarto*. The last and chief perfection of colouring lyeth in the out-lines, or extremities of the work, being cut off with such a wonderful subtilty and sweetness, as to present unto us things we do not see, but that we should believe that behind the pictures, there is something more to be seen, than can easily be discerned; thereby setting forth, as it were, those things which are really concealed, this was *Barrhasius* his chief glory; but herein *Apelles* exceeded all others whatsoever, as *Petronius* in *Satyrico* seems to affirm.

IX. *Action and Passion is next to be considered, in which consists life and motion.*

There is not any thing that can add a more lively grace to the work, than the extream likeness of motion, proceeding from the inward Action or Passion of

of the mind. It is therefore a great point of Art, which leads unto *Perfection*, the which we are to learn by casting our eyes upon nature, and tracing her steps. Consider all the gestures of the body, as the head, by which is expressed the affections of the mind. The casting down of the head, sheweth dejection of mind, being cast back, arrogance; hanging on either side, languishing, being stiff or sturdy, churlishness: by it we grant, refuse, affirm, threaten; or passively are bashful, doubtful, sullen, envious, &c. by the motions of the Countenance appears sorrow, joy, love, hatred, courtelie, courage, dejection, &c. by the motions of the countenance, are exprest the qualities of the mind, as modesty and shamefacedness, or boldness and impudence; but of all the parts of the countenance, the eyes are most powerful, for they, whether we move or move not, shew forth our joy or sorrow; this is excellently exprest by the Prophet, in *Lam.* 3. 48. פליטם חרד עיני על יסודי בת עמי *palge majim terrad gñem, gñal shcher bat gñammi*, which Tremellius renders, *Rivis aquarum perfluit oculus meus*, *propter contritionem filie populi mei*: and again גיני נורה יתא חוסה *gñeni niggerah velo tidwa*, i.e. *oculus meus defluit nec desistit*. For the same purpose it is that nature hath furnished them with tears; but their motion doth more especially exprest the intention, as meekness, pride, spitefulness, and the like; all which are to be imitated, according as the nature of the action shall require, as staring, closed, dull, wanton, glancing, asking or promising something. The *eye-brows* also have some actions, for they chiefly command the fore-head by contracting, dilating, raising and depressing it; wrinkled brows shew sadness and anger; displayed, cheerfulness; hanging, shame; elation, consent; depression, dissent, &c. The *Lips* shew mocking, scorning, loath-

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loathing, &c. The Arm gently cast forth, is graceful in familiar speech; but the arm spread forth towards one side, shews one speaking of some notable matter; without the motion of the hands all motion is maimed: The hands as it were call, dismiss, threaten, request, abhor, fear, ask, demand, promise, deny, doubt, confess, repent, number, measure, rejoyce, encourage, beseech, hinder, reprove, admire, relate, commend, &c. In admiration we hold the hand up, bent somewhat backward, with all the fingers closed; In relating we join the top of the fore-finger to the thumb-nail: In promising we move it softly: In exhorting or commending, more quick: In penitence and anger, we lay our closed hand to the breast: We close the fingers ends, and lay them to our mouth when we consider, &c. It is not yet enough that the Picture or Image resembles the proportion and colour of the life, unless it likewise resembles it in the demeanour of the whole body; therefore *Callistratus* calls this Art, the art of counterfeiting manners. *Ulysses* is evidently, saith *Philostatus*, discerned by his austeritv and vigilancy; *Menelaus* by his gentle mildness; *Agamemnon* by a kind of Divine Majesty; *Ajax Telamonius*, by his grim look; *Locrus* by his readiness and forwardness. The best Artists ever change their hands, in expressing of Gods, Kings, Priests, Senators, Orators, Musicians, Lawyers, &c. *Zeuxis* painted the modesty of *Penelope*: *Echion* made a new married but shamefaced woman: *Aristides* painted a running Chariot drawn with four horses: *Antiphilus* made a boy blowing the fire: *Philoxenus Eretrius* depicted the Picture of Wantonness: *Parrhasius* made the *Hoplites* or Pictures of two armed men, as may be seen in *Pliny lib. 35. cap. 9, 10, and 11.* *Boethius* made a babe strangling a goose: *Praxiteles* made a weeping woman, and a rejoycing whore; *Euphranor* drew the picture of

Paris

Paris as a Judge, a Wooer and a Soldier: See *Pliny lib. 34. cap. 8.* where you may have many other examples. It is worth our pains to see in *Calistratus* these descriptions at large, whereby we may see it is a singular *Perfection of Art.*

X. *The last step of Perfection is the right ordering and disposing of things.*

This order or disposition must be observed as well in a picture consisting of one figure, as in a picture of many figures. The nature of man, saith *Xenophon in Oeconomico*, cannot name any thing so useful and fair, as order; a confused piece of work cannot deserve admiration; those things only affect us, wherein every part is not only perfect in it self, but also well disposed by a natural connexion. It is not enough in a building to bring hair, lime, sand, wood, stones, and other materials, unless we take care that all this confused stuff be orderly disposed to the intent. *Nature* it self seems to be upholden by *Order*, and so are all things else which are subjugated to the same Law. Now the way to attain to this true *order of disposition*, is *first* to conceive the *Idea* of the history in the imagination, that the presence of the things in the mind may suggest the order of disposing each thing in its proper place, yet with that subtilty that the whole may represent one entire body. *Secondly*, That the frame of the whole structure of this disposition, may be analogous to the things themselves; so that we may at once represent things which are already done, things which are doing, and things which are yet to be done; perfecting, as *Philostratus* saith, in every one of these things, what is most proper, as if we were busied about one only thing. *Thirdly*, An historical Picture must represent the series of the history, which although the Picture be silent, yet that the *connexion* might (as it were)

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were) speak, putting the principal figures in the principal places. *Fourthly*, The parts must be connected easily rolling on, gently flowing or following one another, hand in hand, seeming both to hold and be upheld, free from all abruption, well grounded, finely framed, and strongly tyed up together; that the whole may be delightfome for its equality, grave for its simplicity, and graceful for its universal analogical compsure. *Fifthly*, That most excellent pieces (if the history will suffer it) be shadowed about with rude thickets, and craggy rocks, that by the horridness of such things, there may accrew a more *excellent grace* to the principal; (just as discords in Musick make sometimes concords) from whence results a singular delight. *Sixthly*, That to these things be added *perspicuity*; which, as *Lucian* saith, through the mutual connexion of things, will make the whole compleat and perfect. *Seventhly* and lastly, that the *disposition of the proportion* be observed, in the due distance of each figure, and the position of their parts, of which we have said something, Section seventh; but in general *Pliny* (*lib. 35. cap. 10.*) saith that in this general disposition of proportional distances, we have no rules; our eye must teach us what to do; to which *Quintilian* assents, where he saith, that these things admit no other Judgement, but the judgement of our eyes.

XI. Lastly, For the absolute Consummation or Perfection of the Art, excellency of Invention, Proportion, Colour, Life and Disposition, must universally concur, and conspire, to bring forth that comely gracefulness, which is the very life and soul of the work, the entire and joint Sum of all perfections.

It is not enough, that a Picture is excellent in one or more of the aforesaid perfections, but the consummation

tion is, that they all concur; for if but one be wanting, the whole work is defective. A good invention affects the mind; true proportion draws the eyes; lively motion moves the soul; exquisite colours beguile the phantasie; and an orderly disposition, wonderfully charms all the senses; if all these unite, and center in one piece, how great an excellence and perfection will appear? *What a comely Grace?* this *Grace* it is, which in beautiful bodies is the life of beauty, and without which, its greatest accomplishments cannot please the beholder. For it is not so much the perfection of Invention, Proportion, Colours, Motion and Disposition apart, which affect the senses, but all those perfections absolutely united, which brings forth that comely *Grace*, and highest Perfection, which Art aims at, and the Artizan strives after. This *Grace* proceeds not from any rules of Art, but from the excellent spirit of the Artificer; it is easier attained by observation and a good judgement, than learned by Precepts, as *Quintilian* in his *Institutions lib. 11. cap. 1.* learnedly observes. And this *Grace* is most graceful, when it flows with facility, out of a free Spirit, and is not forced or strained out with labour and toil, which quite spoils and kills the life of the work: Now this facility springs from Learning, Study and exercitation. *Art* and *Nature* must concur to the Constitution of this *Grace*; *Art* must be applied discreetly to those things which we naturally affect, and not to things which we loath; lest we miss of that *Glory* which we seek after.

CHAP. IV.

*How the Ancients depicted their Gods :
and first of Saturn.*

WE here intend to comprehend the various ways of the Ancients in depicting their Idols, according to the customs of those several Nations, where they were adored and worshipped, and that from the most Ancient, chiefest and best approved Authors now extant.

I. The Ancient Romans figured Saturn like an old man, with a Sythe or Hook in his hand, by some signifying Time, as his name Chronos also intimates.

II. They also figured him in the shape of a very Aged man, as one who began with the beginning of the World, holding in his hand a Child, which by piece-meals he seems greedily to devour.

By this is signified the revenge he took for being expelled Heaven by his own Children, of which those which escaped his fury, were only four, Jupiter, Juno, Pluto, and Neptune, by which is shadowed forth the four Elements, Fire, Air, Earth, and Water, which are not perisrable by the all-cutting Sickle of devouring Time.

III. Martianus Capella depicts him an old man, holding in his right hand a Serpent, with the end of its tail in its mouth, turning round with a very slow pace, his temples girt with a green wreath, and the hair of his head and beard milk white.

The wreath on his head shews the Spring time, his snowy hair and beard, the approach of churlish winter; the slowness of the Serpents motion, the sluggish revolution of that Planet.

IV. Macro-

IV. Macrobius describes him with a Lions head, a Dogs head, and a Wolfs head.

By the Lions head is signified the time present, (which is alwayes strongest, for that which is must needs be more powerful than that which is not:) by the Dogs head, the time to come, (which alwayes fawns on us, and by whose alluring delights we are drawn on to vain and uncertain hopes:) and by the Wolfs head, time past, (which greedily devourerth whatsoever it finds, leaving no memory thereof behind.)

V. Macrobius also saith, that among the rest of his descriptions, his feet are tyed together with threds of Wooll.

By which is shewed, that God does nothing in haste, nor speedily castigates the iniquities of man, but proceeds slowly and unwillingly, to give them time and leisure to amend.

VI. Eusebius saith, that Astarte (the daughter of Caelum, wife and sister of Saturn) did place also upon his head two wings, demonstrating by the one, the excellency and perfection of the mind; by the other, the force of sense and understanding.

The Platonicks understand by Saturn the mind, and its inward contemplation of things celestial, and therefore called the time in which he lived, the golden Age, it being replete with quietness, concord, and true content.

C H A P. V.

How the Antients depicted Jupiter.

I. **O**rphens describes him with golden locks, having on his temples peeping forth two golden horns, his eyes shining, his breast large and fair, having on his shoulders wings.

By the golden locks is signified the Firmament, and its glorious army of tralucēt Stars: by his two Horns, the East and West: by his eyes, the Sun and Moon: by his breast, the spacious ambulation of the air; and by his wings the fury of the winds.

II. Porphyrius and Suidas depicture the Image of Jupiter sitting upon a firm and immoveable seat; the upper parts naked and unclothed, the lower parts covered and invested; in his left hand a Scepter; in his right hand a great Eagle, joined with the figure of Victoria.

This Image was erected in Piræus, a stately and magnificent Gate of Athens: by the seat is shewed the permanency of Gods power: the naked parts shew that the compassion of the Divine power is always manifest to those of an understanding Spirit: the lower parts covered, shew that while we wallow in the world, and as it were rock'd asleep with the illecebrous blandishments thereof, that the divine knowledge is hid and obscured from us: by the Scepter is signified his rule over all things: by the Eagle and Victoria how all things stand in vassalage and subjection to the all-commanding power.

III. Martianus depictures him with a regal crown, adorned with most precious and glittering stones; over his shoulders, a thin vail (made by Pallas own hands)

hands) all white, in which is inserted divers small pieces of glafs representing the moſt reſplendent Stars; in his right hand he holdeth two balls, the one all of Gold, the other half Gold, half Silver; in the other hand an Ivory Harp with nine ſtrings, ſitting on a foot-cloth, wrought with ſtrange works, and Peacocks feathers; and near his ſide lieth a tridentall gold embossed maſs.

IV. *Plutarch* ſaith that in *Crete*, he had wholly humane ſhape and proportion, but without ears.

By that was ſignified that Superiours and Judges ought not to be carried away by prejudice nor perſwaſion, but ſtand firm, ſtedfaſt and upright to all without partiality.

V. Contrariwiſe the *Lacedæmonians* framed his picture with four ears.

By that they ſignified that God heareth and underſtandeth all things; and that Princes and Judges ought to hear all informations, before they deliver definitive ſentence or judgment.

VI. *Pausanias* ſaith that in the temple of *Minerva* (among the *Argives*) the ſtatue of *Jupiter* was made with three eyes; two of them in their right places; the other in the middle of his fore-head.

By which is ſignified his three Kingdoms; the one Heaven; the other Earth; the laſt Sea.

VII. With the *Eleans* (a people of *Greece*) the Statue of *Jove* was compacted of Gold and Ivory, empaled with a Coronet of Olive leaves; in his right hand the Image of *Victoria*; in his left a Scepter, on the top of which was mounted the portraicture of an Eagle, upon a ſeat of Gold, enchaſed with the forms of many unknown birds and fiſhes, upheld and ſupported by four Images of *Victoria*.

VIII. In *Caria* (a place of the leſſer *Asia*) the Statue

Statue of *Jupiter* was made holding in one of his hands a Pole-axe.

The reason of this was, as Plutarch saith, from Hercules, who overthrowing Hippolyta the Amazonian Queen, took it from her, and gave it to Omphale his wife a Lydian. The Platonists understand by Jupiter, the soul of the world; and that divine spirit through whose Almighty Power, every thing receives its being and preservation.

IX. He is also painted with long curled black hair in a purple robe, trimmed with Gold, and sitting on a golden throne, with bright yellow clouds dispersed about him.

CHAP. VI.

How the Antients depicted Mars.

I. **M***Acrobis* saith that the Pictures of *Mars* were adorned and beautified with the Sun-beams, in as lively a manner as could be devised; with an Aspect fierce, terrible, and wrathful, hollow red eyes, quick in their motion, face all hairy with long curled locks on his head, depending even to his shoulders, of a coal black colour, standing with a spear in the one hand, and a whip in the other.

II. He is also sometimes depicted on horse-back and sometimes in a Chariot, drawn with horses called *Fear* and *Horror*: some say the Chariot was drawn with two men, which were called *Fury* and *Violence*.

III. *Statius* saith he wore on his head a helmet most bright and shining, so fiery as it seemed, there issued

flashes of lightning; a breast-plate of Gold, 'insculp'd with fierce and ugly Monsters; his shield depainted all over with blood, enchased with deformed beasts, with a spear and whip in his hands, drawn in a Chariot with two horses, *Fury* and *Violence*, driven with two churlish Coach-men, *Wrath* and *Destruction*.

IV. *Isidorus* saith that the Picture of *Mars* was depainted with a naked breast.

By which is signified that men ought not to be timorous in war, but valiantly and boldly expose themselves to hazards and dangers.

V. *Statius* saith that the house of *Mars* was built in an obscure corner of *Thracia*, made of rusty, black Iron; the Porters which kept the gates were *Horror* and *Madness*; within the house inhabited *Fury*, *Wrath*, *Impiety*, *Fear*, *Treason* and *Violence*, whose governess was *Discord*, seated in a regal throne, holding in one hand a bright sword, and in the other a basin full of humane blood.

VI. *Ariosto*, describing the Court of *Mars*, saith, that in every part and corner of the same were heard most strange Echoes, fearful shrieks, threatnings, and dismal cries; in the midst of this Palace was the Image of *Vertue*, looking sad and pensive, full of sorrow, discontent and melancholy, leaning her head on her arm: hard by her was seated in a chair *Fury* in triumph: not far from her fate *Death*, with a bloody stern countenance, offering upon an *Altar* in mens skulls, humane blood, consecrated with coals of fire, fetch'd from many Cities and Towns, burnt and ruined by the tyranny of War.

CHAP. VII.

How the Antients depicted Phœbus or Sol.

I. **M**acrobius saith that in *Assyria* was found the Statue of *Apollo*, *Phœbus* or *Sol*, the father of *Æsculapius*, in the form of a young man, and beardless, polished with Gold, who stretching out his Arms, held in his right hand a Coachmans whip; and in his left a thunderbolt with some ears of Corn.

The Tyrant of Syracuse, Dionysius, with fury pulled off the beard from the figure of Æsculapius, saying it was very incongruous that the father should be beardless, and the son have one so exceeding long.

II. *Eusebius* saith that in *Egypt* the Image of *Sol* was set in a ship, carried up, and supported by a *Crocodile*: and that they (before letters were invented) framed the shape of the Sun, by a Scepter, in the top of which was dexterously engraven an eye.

The Scepter signified Government: the Eye, the power which over-sees and beholds all things.

III. The *Lacedæmonians* depicted *Apollo* with four ears, and as many hands.

By which was signified the judgment and prudence of God being swift and ready to hear, but slow to speak, and from thence grew that proverb among the Grecians.

IV. *Herodotus* reporteth that the *Phœnicians* had the Statue of the Sun made in black stone, large and spacious at bottom, but sharp and narrow at top, which they boasted to have had from Heaven.

V. *Lactantius* saith that in *Persia*, *Phœbus* or *Apollo* was their chiefest God, and was thus described; he had

the head of a Lyon habited according to the Persian custom, wearing on his head such ornaments as the women of *Persia* used, holding by main force a white Cow by the horns.

The head of the Lion sheweth the Suns dominion in the sign Leo; the Cow shews the Moon, whose exaltation is Taurus: and his forceable holding, the Moons Eclipse which she cannot avoid.

VI. *Pausanias* telleth that in *Patra* a City of *Achaia*, a metalline Statue of *Apollo* was found in the proportion of an Ox or Cow.

VII. *Lucianus* saith that the *Assyrians* shap'd him with a long beard (shewing his perfection;) upon his breast a shield; in his right hand a spear, in the top of which was *Victoria*; in his left hand *Anthos*, or the Sun flower: this body was covered with a vestment upon which was painted the head of *Medusa*, from which dangled downwards many swarms of snakes; on the one side of him *Eagles* flying, on the other side a lively *Nymph*.

VIII. The *Egyptians* compos'd the statue of the Sun in the shape of a man, with his head half shaven.

By the head half shaven, is signified that though his beauty or shining may be clouded for a time, yet that he will return and beautifie the same with his pristin brightness; as the growing of the hairs (which signifie his beams) to their full extent and perfection again may denote,

IX. *Martianus* thus describes him; upon his head (saith he) he wears a royal and gorgeous Crown, in-chased with multitudes of precious Gems; three of which beautifie his fore-head; six his temples; and three other the hindermost part of the Crown: his hair hanging down in tresses, looks like refined Gold, and his Countenance wholly like flame; his vestment

is

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is thin, subtil, and wrought with fine purple and gold ; in his right hand he holds a bright shield ; and in his left a flaming fire-brand : on his feet he hath two wings, beset with fiery Carbuncles.

X. *Ensebius* writeth that in *Elephantinopolis* (a City in *Egypt*) the Image of *Apollo* was framed to the due likeness of a man throughout the body, save only, that he had the head of a Ram, with young and small horns, and his aspect of a *Cerulean* and blewish green, not unlike to that of the Sea.

The head of the Ram signifies the Sun's exaltation in the sign Aries ; and the young horns the change or New of the Moon, made by her conjunction with the Sun, in which she looks blewish.

XI. He is also drawn with long curled golden hair, crowned with a lawrel in a purple robe a silver bow in his hand, sitting on a throne of Emeralds.

*There might you see with greatest skill intexed,
The portraiture of Phœbus lively drawn ;
And his fair Sisters shape thereto annexed,
Whose shining parts seem'd shadow'd o're with lawn.
And though with equal art both were explain'd,
And workmens care gave each of them their due,
Yet to the view great difference remain'd,
In habit, shape, aspect, and in their hue.*

*For one of them must give the day his light :
And th' other reign Commandress of the night.*

C H A P. VIII.

How the Antients depicted Venus.

I. **H**ER Statue is framed in the shape of a most beautiful and young woman, standing upright in a huge shell of fish, drawn by two other most ugly and strange Fishes, as *Ovid* at large noteth.

II. *Pausanias* saith she is drawn in a Coach, through the airy passages, with two white Doves (as *Apuleius* also affirmeth) which are called the birds of *Venus*.

III. *Horace* and *Virgil* affirm that the Chariot of *Venus* is drawn by two white Swans, of which *Statius* also maketh mention, who saith that those birds are most mild, innocent, and harmless, and therefore given unto *Venus*.

IV. *Praxiteles* an excellent engraver in the Island of *Cnidos*, made her Image naked, and without clothes, as also did the Grecians.

By which was signified that all luxurious and licentious people were by their inordinate lusts, like beasts deprived of sense, and left as it were naked and despoiled of reason; and understanding; and oftentimes also stripped thereby of their riches, goods and estates.

V. *Lactantius* saith that the *Lacedemonians* framed and composed the Image of *Venus* all armed like a Warriour, holding in one hand a spear, in the other a shield or target.

And this was by reason of a certain Victory which the women of that place got over their enemies, the people of Messenia, which success they supposed to have proceeded from the power and assistance of Venus, as inspiring these womans hearts with courage, stoutness and resolution,

VI. She

VI. She is also depicted with yellow hair attired with black; a scarlet, or else dun-coloured robe.

C H A P. IX.

How the Antients depicted Mercury.

I. **T**HE Antients described him in the shape of a young man without a beard, with two small wings fixed behind his shoulders and ears, his body almost all naked, save that from his shoulders depended a thin vail, which winded and compassed about all his body; in his right hand he held a golden purse, and in his left a *Caduceus*, or snaky staff, to wit, a slender white wand, about which two Serpents do annodate and entwine themselves, whose heads meet together just at the top, as their tails do at the lower end.

This resemblance was called Concordia or Signum Pacis; upon which it came to pass, that Embassadors, and great men in matters of State, carried always in their hand such a like staff, and were called Caduceators.

II. *Apuleius* writeth that *Mercury* was a very youth, having very short hair on his head of an Amber colour, and curled, having for a vestment only a subtil and thin vail made of purple Silk.

III. *Martianus Capella* describes him young, yet of a strong and well composed body, with certain young hairs of a yellowish colour sprouting out of his chin.

IV. *Pausanias* saith that in a Province of *Corinth*, he was depicted like a young man carrying a ram upon his shoulders; and that a Statue (brought from *Arcadia*

cadia unto *Rome*) erected in the temple of *Jupiter Olympicus*, had on its head a helmet of engraven steel; and over his shoulder, a coat, who held under his arm the Image of a ram.

V. Among some of the *Egyptians* his Image was framed with a head like a dog's, holding in his right hand a *Caduceus* or snaky wand; shaking with his left a green bough of a Palm.

By the head of the dog was understood subtilty and craftiness (no beast being so subtil as a dog;) by the snaky wand the power of wisdom and Eloquence in producing of peace, signified by the green palm.

VI. By some he was depicted in the similitude of a very aged man, his head almost bald, saving that on the sides there remained some few hairs, short and curled; his look grim, severe and sowe; his complexion of a tawny, antient hue; his upper garment, of a Lions skin; in his right hand a huge pole-ax, in his left hand an Iron bow: at his back hanging a Quiver of steel-headed arrows: to the end of his tongue were fastned many small chains of Gold, at whose ends were tyed multitudes of all sorts of men, which he seemed to draw unto him; looking always backward, to behold the innumerable troops of people following him.

By this description is signified the all powerful and attractive vertue of Eloquence; which by his age is understood to be found only in old, wise and experienced men, as being in them more mature and perfect, than in those of younger years, of which Homer speaks at large in his Commendation and Praise of Nestor: from whose mouth (saith he) plentifully rolled forth most pleasant and dulcid streams; whose pen distilled CrySTALLINE drops of delicious sweetness; whose works and fruits so complearily adorned with golden sentences, asswageth the malice of time, and miti-
gath

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gateth and allayeth the spight of forgetfulness, that his perpetuity is engraven in the brass-leaved books of eternal memory, never to be blotted out.

VII. He is also drawn with long curled yellow hair in a coat of flame colour, with a mantle purely white, trimmed with Gold and Silver; his Beaver white, with white feathers, his Shooes Golden, his Rod Silver.

CHAP. X.

How the Antients depicted Diana or Luna.

I. **D**iana, Cynthia, Lucina or Luna was according to Propertius depicted in the likeness of a young beautiful virgin; having on either side of her forehead two small glistering horns, newly putting forth, drawn through the air in a purple colored Coach, by two swift paced horses, the one of a sad Colour, the other of a white.

These two differing horses Boccace saith, shew that she hath power both in the day and night.

II. Claudianns saith that her Chariot is drawn by two white Bullocks, (which Image the Egyptians worshipped with great zeal and reverence) having one of their flanks bespotted with divers stars, and on their heads two such sharp horns, as the Moon hath in her chiefeft wane.

III. Cicero describes her statue (which he brought out of a temple in Sicilia) of a wonderful height, and large dimension, the whole body covered with a thin vail, of a youthful aspect, holding in her right hand a lively burning torch, and in her left an Ivory bow, with a Quiver of Silver-headed arrows hanging at her back.

IV. The

IV. The Poets (who call her the goddess of hunting and imperial governess of Woods and Groves) describe her in the habit of a young *Nymph*, with her bow ready bent in her hand, and a *Quiver* of arrows hanging by her left side; a swift paced Grey-hound fast tyed to her right side, with a collar about his neck; and after her following troops of *Sylvan Virgins*, which are chaste, and are called the *Nymphs of Diana*.

V. These Virgins and Votresses of the Goddess, we thus describe.

*Scarce mounted Sol upon his glorious Car,
When o're the lofty hills, and lowly plain,
Running apace, you might perceive afar
A Troop of Amazons to post amain.*

*But when they nearer came unto your view,
You might discern Diana and her Crew.
A careless crew of lively Nymphs, despising
The joyous pleasures and delights of love;
Wasting their days in rural sports devising:
Which know no other, nor will other prove.*

*Wing'd with desire to overtake the chase,
Away they flung with unresisted pace.
Their necks and purple veined arms are bare,
And from their Ivory shoulders to their knee,
A Silken vestment o're their skin they wear,
Through which a piercing eye might chance to see.*

*Close to their bodies is the same engirted,
Bedeck'd with pleasing flowers there inserted.
Each in her hand a Silver bow doth hold,
With well-stor'd Quivers hanging at their backs:
Whose arrows being spent they may be bold
To borrow freely of each others packs.*

*Thus are these nimble skipping Nymphs display'd,
That do attend that Goddess, Queen and Maid.*

VI. In *Arcadia* saith *Pausanias* was a statue of *Diana*, covered over with the skin of a Hind, and from her shoulders hung a Quiver of Arrows; in one hand a burning Lamp, the other leaning upon the heads of two serpents, and before her feet a hound.

VII. The *Egyptians* worshipped her under the name of *Isis*; and depicted her covered with a black and sable vestment, in token that she her self giveth no light; holding in one hand a Cymbal, in the other an earthen vessel of water, upon which as *Servius* saith, many thought her to be the Genius of *Egypt*.

By the Cymbal is shewed the murmurings and roarings of Nilus, when it overflows Egypt; and by the other vessel the nature of the Country, which is moist and full of lakes, pools and rivers.

VIII. She is also depicted with yellow hair, a glass green mantle, trimmed with Silver; buskins Silver; bow Golden, Quiver of various colours.

IX. *Nympha Diana* in white linnen to denote their Virginity, and their garments girt about them, their arms and shoulders naked, bows in their hands, and arrows by their sides.

CHAP. XI.

How the Antients depicted Janus.

I. *Janus* is depicted with two faces; in the one of his hands is a long rod or wand; in the other a Key.

The two faces of *Janus* signifie time; the one being withered and hoary, shews time past; the other youthful and beardless, time to come.

II. *Pliny*

II. *Pliny* saith that *Numa* King of the *Romans*, caused the statue of *Janus* to be hewed out in such sort, that the fingers of his hands appeared to be three hundred sixty five, to shew that he was God of the year, whereupon they called the first month of the year *Januarius*, from *Janus* their God.

Under the feet of Janus is oftentimes placed twelve Altars, shewing thereby the months of the year, or signs of the Zodiack, through which Sol makes his revolution.

III. The *Phœnicians*, as *Cicero* and *Macrobius* report, framed his Image in the form of a serpent, holding her tail in her mouth, and continually turning round.

IV. Some depicted *Janus* with four faces, (as were those statues which were found in divers places of *Tuscany*).

By the four faces was signified the four Seasons of the year, Spring, Summer, Autumn, and Winter : which some think to be Venus, Ceres, Bacchus and Vulcan ; and sometimes the winds with Æolus their Commander.

CHAP. XII.

How the Antients depicted Aurora.

I. **H** *Omer* describes her like a young Virgin, having her hair dishevelled, and hanging loose about her shoulders being of the colour of the purest gold, sitting in a golden chair, with all her vestments of that hue and colour.

II. *Virgil* saith, that upon the instant time of the fable nights departure, she cometh with one of her hands

hands full of Roses, Gilliflowers and Lillies, taken out of a basket which she carries in the other hand, which she besprinkles on the marble pavement of the lower Heavens, adorning the Sun with unspeakable beauty.

III. Others describe her, holding in one hand a flaming torch, and drawn in a gorgeous and star-bespotted Chariot, by winged *Pegasus*; which favour she obtained of *Jupiter* by many importunate requests, presently after the downfal of *Bellerophon*.

IV. She is as it were the Herald and Messenger of *Phæbus*, who receives her being from the vertue of his beams; and is no other but that rubicund and Vermillion blush in Heaven, which *Sol's* first appearance worketh in the *Orient*, and from thence descending beautifies our *Hemisphere* with such a resplendency.

V. She is also depicted in a purple robe, in a blew mantle fring'd with Silver.

C H A P. XIII.

How the Antients depicted Juno.

I. **S**HE was set forth by the Antients like a middle aged woman, holding in one hand a Silver vessel, in the other a sharp Spear: and *Homer* saith she was drawn in a Chariot glistering with precious stones; whose wheels were Ebony, and their nails fine silver, mounted upon a Silver Seat; and drawn with horses, which were fastned with chains of Gold.

II. She is oftentimes depicted with a Scepter in her hand,

hand, to shew that she hath the bestowing of Governments, Authorities and Kingdoms.

III. *Martianus* depicts her (sitting in a chair under *Jupiter*) with a thin veil over her head, with a Coronet upon it, incased and adorned with many precious Jewels; her inward vestment fine and glittering, over which depended a mantle of a sad and darkish colour, yet with a secret shining beauty; her shooes of an obscure and sable colour; in her right hand a thunberbolt; and in her other a loud noised Cymbal.

IV. *Pausanias* saith that in a temple in *Corinth*, her statue (made of Gold and Ivory) was adorned with a glorious Crown, on which was insculped the pictures of the *Graces*; with a *Pomegranate* in the one hand, and a Scepter (on the top of which a Cuckow) in the other: for that *Jupiter*, when he was first enamoured of *Juno*, transformed himself into that bird.

Touching this story (and others of like kind) *Pausanias* saith, that although he did not believe such things to be true, nor any others, which are so written of the Gods; yet saith he, they are not altogether to be rejected, in that there were no such things reported but that they were impleated and filled with mysteries, and carried in themselves an inward meaning, and secret understanding, the which no doubt some might by their writings have unshadowed, if the tyranny of fore-passed times had not destroyed and obliterated the same.

V. *Tertullian* writeth that in *Argos* a City in *Greece*, the statue of *Juno* was covered all over with the boughs of a Vine, and underneath her feet lay the skin of a Lion, which discovered the hatred and disdain she bare towards *Bacchus* and *Hercules*, to whom (as the Poets say) she was step-mother.

VI. Some have painted her a middle aged woman, holding

Chap. 14. *Depicting Ops or Tellus.* 281

holding in one hand a poppey-flower or head ; with a yoke or pair of fetters lying at her feet.

By the yoke was meant the hand of marriage, which tyeth man and wife together ; and by the Poppey, fruitfulness or the innumerable issue of children, which are brought forth into the world (signified by the roundness of the Poppey head, and its numberless seeds therein contained.) From hence many suppose her to be the goddess of marriage.

VII. She is also painted with black Hair and Eyes, adorned with a sky-coloured mantle, or pied ; wrought with Gold and Peacocks eyes ; like the orient circles in the Peacocks trains.

CHAP. XIV.

How the Antients depicted Ops or Tellus.

I. **M***Artianus* saith, that *Ops* (the wife of *Saturn*) is an old woman, of great bigness, continually bringing forth children, with whom she is encompassed and set round, going in a green vestment, with a veil over her body, spotted with divers colours, wrought with infinite curious knots, and set with all sorts of Gems and Metals.

II. *Varro* (out of *Boccace*) thus describes her : she is crowned (saith he) with a Crown insculpt with Castles and Towers ; her apparel green, overshadowed with boughs ; in the one hand a Scepter, in the other a Ball or Globe ; and near to her a Chariot of four wheels, drawn by four Lions.

By the Crown is signified the habitations of the earth ; by the greenness and boughs, the increase thereof ;

T

by

by the Scepter, the Kingdoms and Governments of the world ; by the Ball, the roundness thereof ; by the Chariot, the continual motion, change and alteration of things ; by the Lions, the wisdom and strength of mankind, by which things are carried on and managed.

III. *Isidorus* saith, that this Goddeſs was painted holding a key in one of her hands : which ſhews, that in the winter the bowels of the earth are locked up by reaſon of cold ; which at the approach of Spring and Summer is unlocked again.

IV. She was ſometimes depicted in the form of an antient woman, having her head circumciſt with ears of corn, holding in her hand a poppey-head : drawn in a Chariot (as *Orpheus* ſaith) with two fierce and untamed *Dragons*.

V. The earth is alſo called *Ceres*, which many have depicted with torches, lights and fire-brands in her hands ; as *Praxiteles* in a temple, ſeated upon a promontory of *Attica*.

VI. She is alſo pictured in a long green mantle.

CHAP. XV.

How the Antients depicted Neptune and the Sea Gods.

I. **N** *Neptune* among the Antients is depainted with ſeveral countenances, ſometimes with mild and pleaſant looks, ſometimes with lowring and ſad, and at other times with a mad, furious and angry aſpect ; naked, holding in his hand a ſilver trident or forked mace, ſtanding upright in the concavity of a great Sea ſhell, forcibly drawn by two monſtrous horſes,

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horses, which from the middle downwards have the proportion and shape of fishes, as *Statius* saith.

That variety of Aspects (according to *Virgil* and *Homer*) is given him from the Sea, in that it at sundry times sheweth it self so: and the trident, the three Gulfs of the *Mediterranean Sea*.

II. Sometimes he is depainted with a thin veil hanging over one of his shoulders, of a *Cerulean* or blewish colour.

III. *Lucianus* setteth him down with marvellous long hair hanging down over his shoulders, of a very sad and darkish colour.

Yet Servius and others affirm, that all the Gods of the Sea were for the most part in the shape of old men with white and hoary hairs, proceeding from the froth or spume of the Sea.

IV. *Plato* describes him in a sumptuous Chariot, holding in one hand the reins of a bridle: in the other a whip, drawn by Sea-horses galloping.

V. *Martianus* describes him of a greenish complexion, wearing a white Crown: signifying thereby the spume and froth of the Sea.

VI. *Glaucus* (another Sea God) saith *Philostratus*, hath a long white beard and hair, soft and dropping about his shoulders; his eyes green and glistering; his brows full of wrinkles, and green spots; his breast all over-grown with greenish Sea-weed or moss, his belly, and from thence downwards fish-like, full of fins and scales.

VII. *Galatea* (a Sea Goddess) is described (by the said *Philostratus*) to be drawn in a strange framed Chariot, by two mighty Dolphins, which were guided by two silver reins held in the hands of old *Triton's* daughters; over her head, a Canopy made of Purple silk and silver, with her hair hanging carelessly over her

shoulders. See her described as a Nymph, Chap. 32. Sect. 7.

VIII. *Oceanus* (the father of all the Sea Gods) saith *Thales Milesius*, is depainted, drawn on a glorious Chariot, accompanied and attended with a mighty company of *Nymphs*; with the face of an old man, and a long white beard.

IX. *Aeolus* is depainted with swoln blub cheeks, like one that with main force strives to blow a blast; two small wings upon his shoulders, and a fiery high countenance.

He is called the God and Ruler of the winds, whose descriptions are in the thirty fourth Chapter of this Book.

X. *Thetis* (another Sea Goddess) is depicted by the sixth Section of the two and thirtieth Chapter of this Book.

XI. *Neptune* is also depicted with long hoary hair, in a blew or Sea-green mantle trimmed with Silver, riding in a blew Chariot, or on a Dolphin of a brown black colour, with a Silver trident in his hand.

CHAP. XVI.

How the Antients depicted Nemesis.

I. SHE was by *Macrobius* described with wings on her shoulders; hard by her side the rudder of a ship, she herself standing upright upon a round wheel; holding in her right hand a Golden ball, in the other a whip.

II. She is often depicted, holding the bridle of an horse in one hand, and in the other a staff.

III. *Chrysippus* (as *Anlus Gellius* saith) described her

her like a young Virgin, beautiful and modest, with an eye prying round about her, for which cause the ancients called her the all-discerning Lady.

This Nemesis, as Pausanias and Amianus Marcellinus say, was held to be the Goddess of Punishments, who castigates the offences of Malefactors, with pains and torments according to their sins and demerits; and rewarding the vertuous with honour and dignities: she was the daughter of Justitia (who dwells and inhabits very secretly, within the house of Eternity, recording the offences of the wicked) and a most severe and cruel punisher of arrogance and vain glory. Macrobius saith, that this Nemesis was adored among the Egyptians (by them called also Rhammusia) as the revenger and chief enemy of Pride, Insolency and Haughtiness; and that she had erect and dedicated unto her, a most stately and magnifike statue of Marble.

CHAP. XVII.

How the Antients depicted Pan.

I. **P**An (the God of Flocks and Sheep) is from the middle upwards in proportion like a man, with his face ruddy and sanguine, being very hairy; his skin and breast covered with the skin of a spotted Doe or Leopard; in the one hand a shepherds hook, in the other a whistle: from the middle downwards the perfect shape of a Goat, in thighs, legs and feet.

II. *Justine* saith, that Pan's Statue was made in a Temple in *Rome*, near the hill *Palatine*, appearing to the view all naked, saving that it was slightly enshadowed and covered with a Goats skin.

Thereby is signified that (as it was repured in those dayes) Pan kept his habitation among Hills, Woods and Groves, who was indeed most of any adored and worshipped by Shepherds, as he that had the peculiar care and Government of their flocks.

III. Goat-ear'd Pan, his smalltipt new grown horns
 Advance themselves, about whose either side
 A flow'ry Garlandtwines, and there adorns
 His curled Temples with a wond'rous Pride.
 His face is of a high and reddish blush,
 From which hangs down a stiff rough beard or bush.
 And for his bodies vesture he doth wear
 The finest skin of the most spotted Doe,
 That ever any in those woods did bear,
 Which from his shoulder loose hangs to his toe.
 And when he walks, he carries in his hand
 A Shepherds hook, made of a knotless wand.

Servius faith, by the horns is signified either the Beams of the Sun, or New of the Moon, at what time she is horned : his red face signifies the element of fire : his long beard, the Air : his spotted garment, the starry firmament : his Shepherds hook, the rule and Government of nature.

IV. After the form of Pan were the Fauns, Sylvans, Satyres and Fairies set forth, having little short horns growing on their heads, with small ears, and short tails.

These are held among some people in very great regard and observance, being of a wonderful speed in running. Plutarch writeth, that there was one of these brought and presented for a rare gift unto Sylla, as he returned from the wars against Mithridates.

V. Plato understandeth by Pan, Reason and Knowledge ;

ledge; which is twofold; the one of a man, the other of a beast: by the upper part of *Pan*, he signifies truth, accompanied with *Reason*, which being Divine, lifteth man up towards *Heaven*: by the lower parts of him is signified the falseness, beastliness and rudeness of those, which living here in the World, are only delighted with the pleasures and foolish vanities thereof.

CHAP. XVIII.

How the Antients depicted Pluto.

I. **M***Artianus* saith, that *Pluto* sitteth (in the lower region) majestically in a chair, holding in one of his hands a black imperial Scepter, and on his head a stately Crown; at whose left hand sitteth his wife *Proserpina*, attended with many Furies, and evil Spirits, and at whose feet lyeth chained the Dog *Cerberus*.

II. The Antients also have painted him drawn in a Chariot, drawn with four furious black horses, from out whose fiery nostrils proceedeth thick and ill-savour'd smoak, as *Claudianus* saith.

III. Some say, that his head is encircled with a garland of *Cypress* leaves; others with *Narcissus* leaves.

The first shew sadness and horror, used in burials, and about the dead: the other are more grateful, and are used in memory of the untimely death of that youth.

IV. *Charon* (*Pluto's* Ferriman, which carries souls over the three rivers of Hell, *Acheron*, *Cocytus* and *Syx*) is described old, yet exceeding strong, with a black mantle hanging loosely over his shoulders, as *Boccace* and *Servius* say.

By Charon is understood time ; and whereas he is supposed to have the transportation of souls from the one side of those rivers to the other ; thereby is signified, that time, so soon as we are born and brought forth into the world, doth carry us along by little and little unto our deaths ; and so setteth us over those rivers, whose names by interpretation signifie sorrowfulness, for that we pass this life with misery and adversity.

V. He is also depicted with long, curled black hair ; in a robe of cloth of Gold.

CHAP. XIX.

How the Antients depicted the Parcae, or Sisters.

I. **T**HE Sisters which are called *Parcae*, are said to attend upon *Pluto*, which are three, and are called *Clotho*, *Lachesis* and *Atropos*,

II. *Clotho* takes the charge of the Births and nati-
vities of mortals : *Lachesis* of all the rest of their life ;
and *Atropos* of their death, or departure out of this
world.

III. They are all three depicted sitting on a row,
very busily employed in their several offices ; the
youngest Sister drawing out of a Distaff a reasonable
big thread : the second winding it about a wheel, and
turning the same, till it becomes little and slender : the
eldest (which is aged and decrepit) stood ready with
her knife, when it should be spun to cut it off.

IV. And they are described to be invested with white
veils, and little Coronets on their heads, wreathed
about with garlands, made of flowers of *Narcissus*.

CHAP.

CHAP. XX.

How the Antients depicted Minerva, or Pallas.

I. **M***inerva* (as taken for *Bellona*) as *Licophrones* saith, was depicted with a flaming fire-brand in her hand by the Antients.

II. Most Writers have described *Minerva* in the shape of a young woman, of a lively and fresh countenance, yet of an angry look, fix'd stedfast eye of a blewish green colour, compleatly armed at all weapons, with a long Spear in the one hand, and in the other a Crystal shield, or target : upon her helmet a garland of Olive branches, and two children, Fear and Horror, by her side with naked knives in their hands, seeming to threaten one another.

III. *Pausanias* saith, that in *Greece*, the statue of *Minerva* was made with an helmet, on the top of which was the shape of a *Sphynx* ; and on the sides thereof, two carved *Griffins*.

IV. *Phidias* making her statue in *Greece*, placed on the top of her Helmet the form of a Cock.

V. She was also painted in *Greece*, sitting on a stool, and drawing forth little small threads from a distaff ; for that the Antients supposed her to be the Inventress of Spinning and the like.

VI. Lastly she is depicted with a blew mantle embroider'd with Silver : and is called the Goddess of Wisdom.

CHAP.

CHAP. XXI.

How the Antients depicted Vulcan.

I. **V**ulcan is depicted, standing, working and hammering in a Smiths forge, on the hill *Atna*, framing Thunderbolts for *Jupiter*, and fashioning Arrows for the God of love. *The opinions which the Antients had of Vulcan were various, in which respect he is shaped sometimes in one form, sometimes in another.*

II. Some make him lame of one leg, of a very black and swarthy complexion, as it were all smoaky; of a general ill shaped proportion in all his Lineaments; and because that he is the husband of *Venus*, often picture her with him.

III. *Alexander Neapolitanus* relateth, that in one place of *Egypt* was erected the statue of *Vulcan*, which held in one of its hands, the true and lively proportion of a mole; and in his other hand a Thunderbolt.

The mole was so placed, because they thought he sent unspeakable numbers of moles among them, as a plague to them, which did eat, gnaw and destroy every thing which was good.

IV. He is also painted lame in a scarlet robe.

CHAP. XXII.

How the Antients depicted Bacchus.

I. **P***hilostratus* saith, that his statue was framed in the likeness of a young man without a beard, of a corpulent and gross body, his face of an high colour

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lour and big; about his head a garland of Ivy leaves; upon his temples two small horns; and close by his side a certain beast, called a *Leopard* or *Panther*.

This description is drawn from the nature of wine, (of which as the Poets feign, Bacchus is the God) whose inventor and finder out was certainly Noah, which not only Moses, but also Josephus and Lactantius specially affirm; wherefore some suppose him to be this God Bacchus.

II. *Claudianus* saith, that his Image or Statue is made all naked; thereby shewing the nakedness of those which abuse themselves with wine, by which they reveal and open those things which ought to be concealed and kept hid.

III. *Diodorus Siculus* saith, that *Bacchus* among the *Grecians* was depicted in two several forms, the one of a very aged man, with a long beard, stiff and thick; the other of youthful years, of a pleasant and amorous aspect.

By the first is shewed the effects of the intemperate use of wine, which overcomes nature and brings with it old age: by the other, how it cherishes and revives the heart, used moderately.

IV. *Macrobius* saith, that *Bacchus* was framed sometimes in the likeness of a young child, sometimes of a youth, sometimes of a man; and sometimes in the likeness of decrepit old age.

By these was signified the four seasons of the year, the vine being dedicated to Sol, in whom they all exist.

V. This Picture was made in the likeness of a Bull (among the *Cyrenians*, a people inhabiting the farther part of *Persia*.)

The reason hereof was because Proserpina (the daughter of Jove) brought him forth in that form.

VI. *Philostratus* saith, that *Bacchus* was oftentimes drawn

drawn clothed in womens garments, and in a long purple robe; wearing upon his head a Coronet of Roses, with companions and followers, all in like loose and wanton garments, fashioning themselves some like rural *Nymphs*, as the *Dryades*, *Oreadess*, &c. some like Sea *Nymphs*, as *Nereides*, *Syrens*, &c. some like *Satyres*, *Fauns*, and *Sylvans*, &c.

The womens garments shews that wine makes a man faint, feeble, and unconstant like to a woman.

VI. *Pausanias* saith, that among the *Eleans*, the picture of *Bacchus* was made with a long beard, and clothed with a long gown hanging to the feet; in one hand a sharp hook, and in the other a bowl of wine, and round about him many Vine-trees and other fruitful plants.

VII. The Statue of *Bacchus* also, was sometimes set forth and adorned with Coronets made of fig-tree leaves, in memory of a *Nymph* (as some say) called *Psyche*, which was by the Gods metamorphosed into that plant.

In like manner, the Nymph Staphilis (on whom Bacchus was in like manner enamoured) was transformed into the Vine, from whence it is that those plants are so exceeding grateful and pleasant unto this God.

VIII. He is painted also with short brown curled hair, with a Leopards skin, or in a green mantle, a tawny face, with a wreath of Vine branches.

CHAP. XXIII.

How the Antients depicted Fortune.

I. **F**ortune was depicted by some with two faces, one white and well-favoured ; the other black, and ugly.

And this was because it was held, that there were two Fortunes, the one good, from whom came riches, happiness, quiet, content and pleasure : the other bad, from whom came wars, afflictions, crosses, disasters, calamities, and all other miseries whatsoever.

II. The Thebans made her in the shape of a woman ; in one of her hands a young child, to wit, *Pluto* or Riches.

So that in the hands of Fortune, they put the disposing of Wealth, Honour, Glory and all Happineses.

III. *Martianus* describes her a young woman, alwayes moving ; covered with a garment of the thinnest silk ; her steps uncertain, never resting long in a place ; carrying in her spacious lap the universal fulness of the treasures, riches, honour and glory of this world ; which in hasty manner (with her hand) she offers ; which offer, if not instantly received, was utterly lost ; in her right hand a white wand, with which she smites such as offend her, slight her kindness, or are not nimble enough to receive them.

*Oh cruel Fortune, stepdame to all joyes,
That disinherist us from sweet content,
Plunging our hopes in troubled Sea's annoyes ;
Depriving us of that which nature lent !*

When

When will thy proud insulting humour cease;
 T' assuage the sorrows of an only one?
 That free from care, its soul may live in peace,
 And not be metamorphos'd into stone.
 But why entreat I thy unstable heart,
 Knowing thy greatest pleasure, thy delight
 Consists in aggravating mortals smart
 Payson'd with woes, by venom of thy spight?
 'Tis what thou wilt, must stand, the rest must fall,
 All humane Kings pay tribute to thy might:
 And this must rise, when pleaseth thee to call,
 The other perish in a woeful plight.
 And this is it, that chokes true vertues breath,
 Making it dye, though she immortal be:
 Fruitless it makes it; subject unto death,
 To fatal darkness, where no eye can see.
 Oh come you wounded Souls, conjoin with me;
 In some adumbrate thicket let us dwell,
 Some place which yet the Heavens ne'r did see,
 There let us build some despicable Cell.

Strength, Beauty, perish: Honours fly away:
 And with Estates, Friends vanish and decay.

IV. In a Temple in Greece, Fortune was made in the form of a grave Matron, clothed in a garment agreeable to such years, whose countenance seem'd very sad; before her was placed the Image of a young Virgin of a beauteous and pleasant aspect, holding out her hand to another; behind these, the Image of a young child, leaning with one of its arms upon the Matron.

The Matron is that Fortune, which is already past; the young Virgin, that which now is: and the young child beyond them both, is that which is to come.

V. Quintus Curtius saith, that among the people of Scythia,

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Scythia, Fortune was depicted in the form of a woman without feet, having round about her at her right hand a number of little wings.

Being without feet, shews that she never stands firm; and the many wings shew, that her gifts and favours are no sooner given, but are presently lost, and do as it were fly away again, before they be fully possessed.

VI. *Alexander Neapolitanus* relateth, that in *Greece*, her Image was made wholly of Glass; to shew that her favours are brittle, and subject to sudden decays.

VII. *Cebes* the Philosopher resembled Fortune unto a Comedy, in which many Actors appear often as Kings and great Monarchs; and presently after become poor fishermen, slaves, bond-men, and the like.

VIII. *Socrates* compared her to a Theatre, or common meeting place, where without all order or observance men take their places and seats, without respect to the dignity of any.

Hereby is shewed, that she (without respect of birth, worth, merit or state,) blindly, unadvisedly, and without any order or reason, bestows felicities, riches and favours.

IX. In *Egira*, a City of *Achaia*, Fortune was drawn in the shape of a beautiful woman, who held in one of her hands a *Cornucopia*; in the other, the boy *Cupid*.

By which is signified (as Pausanias saith) that beauty without riches avails nothing: and indeed I may say he is doubly fortunate, who in his love enjoys the fruition of both beauty and riches: but he is happy in the superlative degree, who with the other two meets with virtue and love also.

X. *Giraldus* saith, that Fortune was with some depicted

pected riding on a horse galloping; with which swift-ness she seems to pass invisible, after whom followeth *Destiny* with great wrath and fury, holding in her hand an Iron bow, and aiming to strike *Fortune* at the heart.

By her swift galloping, is signified her mutability. See Sect. 4. Chap. 28. where she is taken as one of the powers.

CHAP. XXIV.

How Vertue, Truth, Peace, Honour, Fame and Opinion were depicted.

I. **V**ERTUE in Greece was made in the form of a Pilgrim, like a grave and austere woman; sitting alone upon a four squared stone, melancholy, and leaning her head upon her knees.

Being a Pilgrim, shews she hath no resting place, secure abode, or certain habitation upon the earth: the form of her sitting, shews her life to be full of troubles, dangers, crosses, and miseries. See the 1. Section of Chap. 30. of this Book.

Hæc angusta via horrendis scatet undique monstribus,
Et vita innumeris est interclusa periculis.
Sed tamen incolumes hac virtus ducit alumnos
Extrema ut vitent, ne pes hinc inde vacillet.
Proclamat longe spes, hic sunt digna laboris
Præmia, & excipient mordaces gaudia curas.
Pax, sincera quies nullo temeranda dolore,
Lætitia hic habitant longum, sine fine, per ævum.

*Fierce Monsters do this narrow passage bound,
And deadly dangers it encompass round.
Yet vertue doth her Followers safely guide,
Lest they should go astray on either side.*

And

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*And Hope proclaims afar; lo here you shall
Have Joy for Sorrow; honey for your gall.
Here Peace and joyful rest for ever dwell,
Which neither cross nor time shall ever quell:*

II. *Truth*, saith *Hippocrates*, was framed in the similitude and likeness of a beautiful woman, attired with gravity and modesty: *Philostratus* saith that she remaineth in the cave of *Amphiarus*, cloathed all in white garments of a beautiful hue: *Lucianus* saith that her statue was made in the form of a young woman, habited in rags, and base attire, with a superscription over her head, how she was wronged and abused by *Fortune*.

III. *Peace*, saith *Aristophanes*, was framed in the shape of a young woman, holding between her arms the Infant *Pluto*, the God of Riches, and Ruler of the lower Regions.

She is also called *Concordia*, and is a special friend to the Goddess *Ceres*, from whom comes the increase of Fruits, Corn, and other nutriments. See Chap. 28.

IV. *Honour* is depicted with two wings on its shoulders; which as *Alciatus* saith, was made in the form of a little child, cloathed in a purple garment, having a Coronet or wreath of Laurel about his head; holding hand in hand the God *Cupid*, who leads the child to the Goddess *Vertue*, which is depainted right over against it.

V. *Fame* is painted like a Lady, with great wings, and seeming to proffer a flight, and to mount from the Earth, and rove abroad: having her face full of eyes; and all over her garments an infinite number of ears and tongues. See the tenth Section of the twenty ninth Chapter of this Book.

VI. *Opinion*, saith *Hippocrates*, resembles a young woman, not altogether so fair and lovely as *Truth*, yet not deformed, or ill proportioned; being rather impudent than modestly bold in her demeanour, with her hand stretched forth to take whatsoever is offered and presented to her.

CHAP. XXV.

How Night, Sleep, Silence, Pleasure and Fear were depicted.

I. **N**ight (the mother of *Sleep* and *Death*) was depicted by the Antients in form of an old woman, having two great wings growing on her shoulders, all coal black, and spread abroad, as if she seemed to offer a flight; and that she is drawn in a Chariot, whose wheels are made of Ebony: having a sad countenance, and an upper garment of a deep black, spotted all over with silver spots like stars, as *Boccace* saith.

She is also depicted like an old woman in a black mantle spotted with stars of Gold.

II. *Sleep* (the brother of *Death*) saith *Hesiod*, was painted of a most fowr, lowring, and sad aspect; aged, and holding in her left hand a young child very beautiful, and in her right, another child, of a most swarthy, black and dull complexion, with legs and arms very crooked. *Philostatus* in a Tablet (which he made for *Amphiaraus*) makes her like an aged woman, slothful and sluggish, cloathed with several garments, the under black, the upper white; holding in one of her hands, a horn pouring forth seed.

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By the garment is signified night and day; by the seed, rest, ease and quiet.

III. *Harpocrates* (the God of *Silence*) called in *Greek Sigaleon*, was made, as *Martianus* and *Apuleius* say, in likeness of a young child, who close to his lips held one of his fingers as a sign of secrecie. Some portraict him without any face at all; all covered with the skin of a wolf, painted full of eyes and ears:

Shewing it to be good to see and hear much, but to speak little.

IV. *Voluptia* or Pleasure, was depainted a Lady, having a pale and lean countenance, sitting in a pontifical and majestick chair, embroidered and embossed with stars of gold, treading and trampling upon *Vertue*.

V. *Fear*, saith *Pausanias*, was shaped in several forms by the Antients; sometimes with the head of a Lion among the Grecians (as on the shield of *Agamemnon* :) and sometimes with the deformed face and body of a woman.

The Corinthians dedicated this Picture so made unto the sons of Medea; which were slain for bringing such fatal gifts to the daughter of old Creon, whereby she, and all that regal family perished, and were for ever extinct.

C H A P. XXVI.

How the Antients depicted several Wisemen and Philosophers, Lawgivers, Emperours, Kings and Queens.

I. **S** *Idonius Apollinaris* in the ninth Epistle of his ninth Book, saith that the Philosopher *Zensippus* was painted with a crooked neck: *Aratus* with a neck bowed downwards: *Zeno* with a wrinkled forehead.

II. *Epicurus*, was painted with a smooth skin: *Diogenes*, with a hairy rough beard: *Socrates*, with whitish bright hair.

III. *Aristotle*, was painted with a stretched out arm: *Zenocrates*, with a leg somewhat gathered up: *Heraclitus*, with his eyes shut for crying.

IV. *Democritus* with his lips open, as laughing: *Chrysippus* with his fingers close pressed together, for numbering: *Euclid* with his fingers put asunder, for the space of measures.

V. In some ancient Bibles and many Pictures, *Moses* is described with horns.

“ The ground of this absurdity was a mistake of the
 “ Hebrew Text, in that of *Moses* descending from the
 “ Mount, upon the nearness of the words, קֵרֶן *Ke-*
 “ *ren*, *Cornu*, an horn, and קָרָן *Karan*, *Luceo*, to shine.
 “ The vulgar translation (of *Exodus* 34. 29. 35.) a-
 “ grees with the former, to wit; *Ignorabat quod cor-*
 “ *nuta esset facies ejus. Qui videbant faciem Moïsis esse*
 “ *cornutam.* The translation of *Paulus Fagius* is other-
 “ wise, viz. *Moses nesciebat quod multus esset splendor*
 “ *gloriæ vultus ejus. Et viderunt filii Israël quod multa*
 “ *esset*

Ch. 26. *Antients depict. Wisemen, &c* 301

"*esset claritas gloria faciei Mosi.* Tremelius and Junius have it thus, *ut ignoraret Mosche splendidam esse factam cutem faciei suae. Quod splendida facta esset cutis faciei Moschi:* agreeing with the Septuagint, "*ἡ δόξα αὐτοῦ ὡς τὸ χρῶμα τοῦ προσώπου,* glorificatus est aspectus cutis seu coloris faciei.

VI. But *Moses* is generally depicted with bright hair, a very beautiful Visage, with radiant scintillations about his head, in form of hoariness, which in Painting is called Glory.

VII. *Alexander* the great, with brown hair, and a ruddy complexion, riding upon his horse; but by some riding upon an Elephant.

The reason of this is hard to be discerned; for as much as I find not in history, that ever he used that beast in his Armies, much less in his own person: except it were for that remarkable battel which he fought with Porus King of India, wherein were many Elephants: In which himself (as Curtius, Arianus and Plutarch relate) was on horseback, the name of which beast yet lives, and is famous in history to this day.

VIII. *Numa Pompilius* with white hair Crowned with a Silver bend or Diadem; his robe crimson trimmed with Gold; his mantle yellow trimmed with Silver; his buskins watchet and silver.

IX. *Aeneas* the Trojan Prince in a purple mantle trimmed with Gold.

X. *David* (the King of Israel) with brown hair, a ruddy complexion and a long beard.

XI. *Elizabeth* Queen of England, pale-faced, light brown hair, and gray-eyed.

XII. *Dido* Queen of Carthage in a purple or scarlet mantle, her under-garments purple; a Golden Quiver; her hair yellow, tyed up with spangles and knots of Gold.

XII. *Gustavus Adolphus* King of Sweden with yellow hair.

XIV. *Adabomet* the Turke's great Prophet, in garments all of green.

XV. *German Emperours* in a Violet-coloured robe, watchet, or light-coloured.

XVI. *Roman Emperours*, with yellow Carrusters embroidered with Silver; the labels of their sleeves, and short bases of watchet; the under sleeves, and long stockings white; a Lawrel wreath, with a Silver jewel before; and rays of Gold, issuing from the wreath.

XVII. *Pythagoras* in white garments with a Crown of Gold.

XVIII. *Empedocles*, in Violet, murry, or purple, and so generally the rest of the *Grecian Philosophers*,

XIX. *Erasmus Roterdamus*, yellow haired, gray-eyed, and somewhat pale.

CHAP. XXVII.

The Painting of the Sibyls.

I. *Sibylla Agrippa*, a women in years, in a roseal garment.

II. *Sibylla Libyca* an elderly woman, crowned with a garland of flowers, in purple garments.

III. *Sibylla Delphica*, with a black garment, a young woman with a horn in her hand.

IV. *Sibylla Phrygia*, in red garments, having an old Saturnian hard favoured face.

V. *Sibylla Hierophila*, a young woman very fair in a pur-

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a purple garment, and head covered with a vail of Lawn.

VI. *Sibylla Europea*, a comely young woman, having a high, red-coloured face, a fine vail on her head, and clad in a garment of Gold work.

VII. *Sibylla Persica*, with a white vail, and a golden garment.

VIII. *Sibylla Samia*, a middle aged woman, clothed in Willow weeds, having a palm in her hand.

IX. *Sibylla Hellepontica*, a young woman in green garments, with a round, lovely, fresh coloured face; holding in her left hand a Book; and in her right hand a Pen.

X. *Sibylla Tiburtina*, an old woman in purple garments, of a hard visage, holding in her Apron the books of the Sibylls.

These Sibylls for their Prophecies of Christ are in high esteem: they are ten in number as Varro saith; yet others make twelve, of which we are not satisfied; Boyfardus in his Treatise of divination, besides these ten addeth two others, Epirotica and Ægyptia. Some, as Martianus, will have but two; Pliny and Solinus, but three; Ælian four; and Salmasius but the first seven. They are generally described as young women, yet some were old, as she that sold the books unto Tarquin, from whence we conclude the Licentia pictoria is very large.

C H A P. XXVIII.

*The Painting of Arts, Vertues, Passions and mi-
nor Gods.*

I. **A** *Rithmetick* is painted in cloth of Gold: *Geometry* fallow faced, a green mantle fringed with Silver, and a Silver wand in her right hand: *Astronomy* with a Silver Cressant on her fore-head, an azure mantle, a watchet Scarf, with golden Stars.

II. *Faith* is painted in white garments, with a cup of Gold: *Hope* in blew, with a Silver Anchor: *Charity* in yellow robes; on her head a tyre of Gold with precious stones; her chair Ivory.

III. *Religion* in a Silver vail, with a garment, or mantle of white: *Justice* in a white robe, and a white mantle; with a Coronet of Silver and white buskins: *Innocency* in white.

IV. *Concord* in a sky-coloured robe, and a yellow mantle; *Peace* in white, scattered with stars, or a carnation mantle fringed with Gold, a vail of Silver, green buskins, and a palm in her hand in black: *Unanimity* in a blew robe, mantle and buskins; with a chaplet of blew Lillies.

V. *Wisdom* in a white robe, blew mantle, seeded with stars: *Law* in purple robes, seeded with Golden stars; a mantle of Carnation fringed with Gold; purple and yellow buskins: *Government* in Armour.

VI. *Watchfulness*, in a yellow robe: a sable mantle fringed with Silver, and seeded with waking eyes; a chaplet of turnsole, in her right hand a Lamp; in her left, a Bell: *Confidence* in a particoloured garment: *Moderesty* in blew.

VII. *Eternity*

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VII. *Eternity* in blew, feeded with Golden stars; the *Soul* in white garments, branched with Gold and Pearl; and crowned with a Garland of Roses: *Felicity*, in purple trimmed with Silver.

VIII. *Love*, in Crimson fringed with Gold, a flame-coloured mantle, a Chaplet of red and white Roses: *Natural-affection*, in Citron colour: *Envy*, in a discoloured garment full of eyes.

IX. *Joy*, in a green robe, and a mantle of divers colours, embroidered with flowers; a garland of Myrtle; in her right hand a Cryстал Cruise, in her left a Golden Cup: *Pleasure* in light garments, trimmed with Silver and Gold: *Laughter* in several colours.

X. *Wit*, in a discoloured mantle: *Jollity*, in flame colour: *Pastime* in purple trimmed with Gold.

XI. *Opinion* in black Velvet, black cap, with a white fall: *Impudence*, in a party-coloured garment: *Audacity*, in blush colour.

XII. *Honour*, in a purple robe, wrought with Gold: *Liberty*, in white: *Safety*, in Carnation.

XIII. *Cupid* was painted (by *Zeuxis*) in a green robe: *Hymen*, in long yellow hair, in a purple or Saffron coloured mantle: *Triton* (*Neptunes* Trumpeter) with a blew skin, in a purple mantle.

XIV. *Urania*, in a mantle of azure, filled with lamps: *Astrea* the Goddeſs of Justice, in a Crimson mantle, trimmed with Silver: the *Graces* all alike, as Sisters, in Silver robes.

XV. *Tellus*, the Goddeſs of the Earth in a green mantle: *Ceres*, with yellow hair, and a straw-coloured mantle trimmed with Silver: *Veſta*, daughter of *Saturn*, in white garments filled with flames.

XVI. *Flora*,

XVI. *Flora* in a mantle of divers colours: *Proserpine* in a black mantle, trimmed with Gold flames: *Echo*, (the Goddess of the Air and daughter of speech, the intirely beloved of *Pan*) is an invisable Goddess.

Ausonius Gallus, reporteth that she hath oftentimes disswaded, and reprehended such, who would undertake to depaint her, and repeats the same in an Epigram, whose sence in English is this.

Surcease thou meddling Artist thy endeavour,
 Who for thy skill hast reap't such long liv'd fame:
 Strive not to paint my body, shape, for never
 Did any humane Eyes behold the same.
 In concave caverns of the Earth I dwell,
 Daughter o'th' Air, and of each tasling voice,
 In Woods and hollow dales I build my Cell,
 Joying to re-report the least heard noise,
 To grief oppress'd, and men disconsolate,
 That tell each grove their souls vexation,
 Their dying agonies I aggravate,
 By their dole accents iteration.
 And he that will describe my form aright,
 Must shape a formless sound or airy sprite.

CHAP. XIX.

To express the Powers.

I. **E**ternity, It is expressed in the form of a fair Lady, having three heads, signifying Time past, present, and to come; in her left hand a Circle, pointing with the fore finger of her right hand up to Heaven:

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Heaven : the Circle signifies she hath neither beginning nor end.

In the Medals of Trajan, she was figured red, sitting upon a Sphæar, with the Sun in one hand, and the Moon in the other : (by her sitting is signified perpetual constancy.)

In the Medals of Faustina, she is drawn with a Vail, and in her right hand the Globe of the World.

Boccace, writing of the Progenie of the Gods, saith that the Antients derived it from Demogorgon, as the principal and first of them all, who inhabited in the middle or Center of the Earth, encircled round about, and circumvested with a dark and obfuscate cloud, breathing from his mouth, a certain liquid humidity.

But however what Eternity is, the name doth clearly discover, containing in it self all Worlds and Ages, and not limited, or measured by any space of time.

Claudius describes it by a Serpent that encompasseth round with her body, the Cave or Den wherein it lyeth, so as making a Circle, she holds in her mouth the end of her tail, which with the Ægyptians was the emblem of a year.

*All in a Circle thus she sits involv'd,
Whose firm tenacity is ne'er dissolv'd :
She sends forth times, and them recalls again,
Ages to come, and past she doth retain.*

But according to Boccace, as Eternity hath an absolute command over all times, so she lives far hence in some remote and unknown vale, where humane steps never approached, but is even unfound out of the celestial inhabitants, those happy souls, who stand before the presence of the greatest, that only knows all things.

II. Time, It is drawn standing upon an old ruine,
winged,

winged, and with Iron teeth. *Or thus*, An old man in a garment of stars ; upon his head a garland of roses, ears of corn, and dry sticks, standing upon the Zodiack, with a looking-glass in his hand ; two children at his feet, the one fat, the other lean, writing both in one book ; upon the head of one the Sun, upon the other the Moon. *Or thus*, An old man, bald behind, winged, with a sithe and an hour-glass, having a lock of hair on his forehead.

III. *Fate*, A man in a fair, long, flaxen robe, looking upwards to two bright stars encompassed with thick clouds, from whence hangs a golden chain.

IV. *Fortune*, A naked Lady having an Insign or Sail overshadowing her, standing upon a Globe or ball.

Lactantius saith that *Fortune* is a vain, idle and senseless name, skewing forth mans weakness in attributing any thing thereto : which Marcus Tullius confirmeth, where he saith that this name of *Fortune*, was first brought in to cover the ignorance of man. Alexander Neopolitanus saith that in Præneste in a temple she was depicted in the shape and form of two sisters, both conjoined in one and the same statue. Pausanias saith that her most ancient statue was that which Bupalus made in Greece in shape of a woman, upon whose head was a round ball, and in one of her hands a Cornucopia. She is called the blind Goddess, and partial Lady, by reason of the bestowing of her unconstant and mutable favours.

Imperious Ruler of the worlds designs,
Lady of solace, pleasure and of pains :
Like Tennis balls thou beat'st us to and fro,
From favours to disgrace, from joy to woe ;
From wars to peace, from rule to be commanded :
But with unconstancy thou now art branded.

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Macrobius saith she was set forth with wings on her shoulders, (to shew that she was always at hand among men) had by her side the rudder of a Ship (to shew that she doth rule and command) her self placed upon a wheel, holding in her right hand a golden ball, and in the other a whip; shewing where she smiled, wealth and honour, and where she frowned, crosses and misery should follow.

In Egypt Fortune was depicted like a Lady turning a great glass wheel, on whose top were many men playing, others a climbing up; and others having attained it, precipitating themselves and falling down back again.

V. Equality, A Lady lighting two Torches at once.

VI. Victory, Is expressed by a Lady clad all in Gold, in one hand a helmet, in the other a Pomegranate: By the Helmet is meant force; by the Pomegranate unity of wit and counsel.

Augustus drew her with wings ready to flye, standing upon a Globe; with a Garland of Bays in one hand, in the other a Coronet of the Emperor, with these words Imperator Cæsar. In the Medals of Octavius, she is drawn with wings, standing on a base, in one hand a palm, in the other a Crown of Gold.

VII. Peace, Is drawn like a Lady, holding in her right hand a wand or rod downwards towards the earth, over a hideous Serpent of sundry-colours; and with her other hand covering her face with a veil, as loth to behold strife or war.

Trajan gave a Lady in her right hand an Olive branch, in her left a Cornucopia. In the Medals of Titus, a Lady having in one hand an Olive branch, the other leading a Lamb and Wolf coupled by the necks in one yoke. The Olive as always the emblem of peace.

VIII. Providence, A Lady lifting up both her hands to Heaven with these words *Providentia Deorum*. Or thus;

thus, A Lady in a robe, in her right hand a Scepter, in her left a *Cornucopia*, with a Globe at her feet.

IX. *Concord*, A Lady sitting, in her right hand a charger for sacrifice, in her left a *Cornucopia*, with the word *Concordia*. Or thus, A fair Virgin, holding in one hand a Pomegranate; in the other a Mirtle bunch.

The nature of these trees are such, that if planted though a good space one from another, they will meet and with time embrace one another.

X. *Fame*, A Lady clad in a thin and light garment, open to the middle thigh, that she might run the faster; two exceeding large wings; garments embroider'd with eyes and ears, and blowing of a Trumpet.

XI. *Destiny*, a Lady, who with great fury, and exceeding celerity holds in her hand an Iron bow ready bent, aiming to strike fortune even at the very heart.

Destiny and fortune can never agree; and therefore as fortune flies from destiny, so destiny pursues fortune; for where destiny sets her foot, there fortune is as it were enchanted and conjured, as having no power, efficacy or virtue.

CHAP. XXX.

Of Vertues and Vices.

I. **V**ertue is represented by *Hercules*, naked, with his Lyons skin, and knotted club, performing some one of his Labours; as offering to strike a dragon keeping an Apple-tree: or holding in his hand three golden Apples.

Hercules is nothing else but Vertue, his name in the Greek

Greek tongue is *Ἡρακλῆς*, quasi *heras klēs*, Junonis gloria: vel quia *κλῆσις τῆς ἡρώας*, celebrat aut commemorat Heroas, which is the property of Vertue: he is drawn naked to demonstrate her simplicity: by the dragon is set forth all manner of vices: by the Lions skin, magnanimity and greatness: by his Oaken Club, Reason and Policy: by its knottiness, the difficulty, pains and labour in seeking after vertue: by the three golden Apples, the three Heroical Vertues, Moderation, Content and Labour.

II. Piety is drawn like a Lady, with a sober countenance; in her right hand she holdeth a sword stretched over an Altar; in her left hand a Stork; and by her side is placed an Elephant and a Child.

The Stork is so called of *σὺργυν*, the reciprocal or mutual love of Parent and Child, of which this bird was ever an Emblem, for the love and care she hath of her parents being old. The Elephant worships towards the rising of the Sun.

III. Hope is drawn like a beautiful child in a long robe hanging loose, standing upon tiptoes, and a trefoyl or three-leaved grass in its right hand, in its left an Anchor.

The loose vestment shews, she never pincheth or binds truth, standing on tiptoes shews she always standeth dangerously; the branch of trefoyl shews knowledge (the ground of faith) faith (the ground of hope) and hope it self.

IV. Mercy, a Lady sitting upon a Lion, holding in one hand a Spear, in the other an Arrow; which she seemeth to cast away.

In the Medals of Vitellius she sits with a branch of Bays in her hand, and a staff lying by her.

V. Justice, a fair young Virgin, drawing after her, with her left hand a black, hard, ill-favoured Woman,

man,

man, haling her by main force, and striking her over the face in a severe manner.

The young Virgin was Justice, the other Injuria : she is drawn young and a Virgin, to shew, that Judges and administrators of Law ought to be incorrupt and free from bribes, partiality or flattery, but just, constant and sincere.

VI. *Felicity*, a Lady sitting in an imperial throne, in the one hand she holdeth a *Caduceus* or Rod, in the other hand a *Cornucopia*.

VII. *Fruitfulness*, a Lady sitting upon a bed, and two little infants hanging about her neck.

VIII. *Disimulation*, a Lady wearing a vizard of two faces, in a long robe of changeable colour ; and in her right hand a Magpye.

IX. *Security*, a Lady leaning against a pillar, before an Altar, with a Scepter in her hand.

X. *Calumnia*, a beautiful, rich and young woman, approaching towards a Judge, gorgeous in her habit, with an angry, scornful and discontented look, and red and fiery eyes ; she holds in her left hand a flaming torch : and with her right she by force draws a young man by the hair of the head.

XI. *Envie*, a wonderful lean old man, with a pale and meagre face, in whose withered cheeks Age hath wrought deep furrows and wrinkles.

XII. *Penitence*, a Woman in vile, ragged and base attire, infinitely deploring her being : and bemoaning her self in passionate fits above all measure, continually weeping.

CHAP. XXXI.

Of Rivers.

I. **H**erein you ought to observe the Adjuncts and Properties of the same; which consists in some notable Accident done near them; some famous City, trees, fruits, or reeds situate upon their banks; some fish only proper to their streams; or recourse of shipping from all parts of the world.

II. Therefore you had best place the City upon their heads; their fruits in a *Cornucopia*; reeds, flowers and branches of trees in their Garlands, and the like.

III. The River *Tyber*. It is expressed (in the *Vatican* in *Rome*) in a goodly Statue of Marble lying along (for so you must draw them) holding under his right arm a she wolf, with two little infants sucking at her teats, leaning upon an Urn or Pitcher, out of which issueth its stream: in his left a *Cornucopia* of delicate fruits, with a grave Countenance and long beard; a garland of flowers upon his head; and resting his right leg upon an Oar.

IV. The River *Nilus*. It is seen (in the *Vatican*) cut out in white Marble, with a garland of sundry fruits and flowers, leaning with his left arm upon a Sphynx; from under his body issueth its stream; in his left arm a *Cornucopia* full of fruits and flowers on one side, with sixteen little children, smiling and pointing to the flood.

The Sphynx was sometimes a monster which remained by Nilus: the Crocodile and ὁ κροκόδειρος, from his barred of Saffron, the most famous monster of Egypt: the sixteen children, the sixteen cubits of height, the utermost

of the flowing of Nilus : their smiling looks, the profit of it, which glads the hearts of the Sun-burnt inhabitants.

V. The River *Tigris*. It was drawn like an old man (as the rest) and by his side a Tiger.

This beast was given it as well for its fierce streams, as for the store of Tigers which are there.

VI. The River *Ganges*. It bears the shape of a rude and barbarous savage, with bended brows, of a fierce and cruel Countenance, crowned with a palm, having, as other floods, his pitcher, and by his sides a *Rhinoceros*.

This River runneth through India, and hath its head from a fountain in Paradise.

VII. The River *Indus*. It is drawn with a grave and jovial aspect, with a garland of its countrey flowers, by its side a Camel (from *χελυς*.) it is represented pleasantly, grave, as an Emblem of the Indian policy.

This is the greatest River in the world, receiving into its channel threescore other great and famous Rivers, and above an hundred lesser.

VIII. The River *Thamesis*. In the house of an honourable friend, I saw the *Thames* thus drawn: A Captain or Soldier lying along, holding in his right hand a Sword, and under his arm the August tower: in the other a *Cornucopia* of all fragrances, with a Golden chain which held four Crowns; and with this he encompassed the streams, from under which bending of his left arm they seemed to flow: his temples were adorned with Bays, the River was empaed on one side with Anchors, and on the other stood *Cesar's Augusta*.

IX. The River *Arms*. It is a famous River in *Italy*, drawn like an old man leaning upon his pitcher, pouring

ing out water: upon his head a garland of Beech, by his right side a Lyon, holding forth in his dexter paw a red Lilly or Flower-de-luce, the antient Arms of the chief City of *Tuscany*.

By the garland of Beech is set forth the great abundance of Beech-trees growing about Falterona in the Appennines where Arnus hath his head.

X. The River *Po* or *Padus*. It is depicted with an Ox's face, having a garland of Reeds or Poplar on his head.

It is so called from the Sister of Phaeton, whom the Poets feign destroyed with lightning, and drowned here: the head of the Ox, is from its horrid noise and roaring, whose crooked banks resemble the horns thereof; by the sides whereof grows much Reed and many Poplars.

XI. The River *Danubius*. In the antient Medals of the Emperour *Trajan*, it is depicted with its head covered with a veil.

It is so drawn, because its head or first spring is unknown. Aufonius saith,

Danubius perit caput occultatus in ore.

XII. The River *Achelous*. *Ovid* describes it with a garland of Reeds, Willow, and the like: having two Urns or Earthen Pitchers, the one empty, the other casting out water; and upon its head two horns, the one whole, the other broken.

This River as it is the most famous of all Greece, so it divides Ætolia from Arcadia, and then falls into the Sea. This is fetch'd from the fable of Hercules who combated him in the likeness of a Bull, and broke one of his horns for Deianiras sake, there turning both its streams into one, whereupon one of the Urns is empty.

XIII. The River *Niger*. It is drawn like a Black-Moor, with Glory, or a Coronet of Sun-beams falling upon his Urn, having by its side a Lyon.

By the Sun-beams and black, is shewed the clime, lying under the torrid Zone, whose inhabitants are Blacks or Moors; the Lyon is that which the Countrey Mauritania and Barbary breed, being the fiercest in the World.

CHAP. XXII.

Of Nymphs.

I. **N**ΥΜΦΗ, *Nympha*, a Bride (from νύξ & παῖς *vidus* as it were a fresh or new creature: or as some will have it from *Nympha* quasi *Lympha*, by changing L. into N. after the Dorick dialect:) it is nothing else but an Allegory, from the Vegetative humidity, which gives life to trees, herbs, plants, and flowers, by which they grow and increase.

II. They are feigned to be the daughters of the Ocean, the mother of floods, the nurses of *Bacchus*, and goddesses of fields, who have the protection and charge of mountains, herbs, woods, meadows, rivers, trees, and generally of the whole life of man.

III. *First, Napææ, Nymphs of the Mountains.*

Let them be drawn of a sweet and gracious aspect, in green mantles, girded about in the middle; and upon their heads garlands of honeysuckles, wild-roses, tyme and the like; their actions, dancing in a ring, making garlands, or gathering flowers.

They

They are so called from Nani's, the top of an hill, or woody valley.

IV. *Secondly, Dryades, Nymphs of the woods.*

Draw these less fair than the former, of a brown or tawny complexion, hair thick like moss, and their attire of a dark green.

They are so called from Δρύς an Oak, having their beginning with trees, and dying again with them.

V. *Thirdly, Naiades Nymphs of the floods.*

Draw them beautiful, with arms and legs naked, their hair clear as Crystal; upon their heads garlands of water-crelles, with red leaves: their actions, pouring out water.

They are so called from Νέω to flow, or bubble as water doth.

VI. *Thetis, a Lady of a brown complexion, her hair scattered about her shoulders, crowned with a Coronet of Periwinkle and Escallop shells, in a mantle of Sea-green, with chains and bracelets of Amber about her Neck and Arms, and a branch of red Coral in her hand.*

VII. *Galatea, a most beautiful young Virgin, her hair carelessly falling about her shoulders like silver threads, and at each ear a fair pearl with a double string of them (sometimes) about her Neck and left Arm a mantle of pure thin and fine white, waving as it were by the gentle breathing of the air, viewing in her hand a sponge made of Sea-froth, she is so called from γάλα, lac, milk.*

VIII. *Iris, a Nymph with large wings, extended like to a semicircle, the plumes set in rows of divers colours, as yellow, green, red, blew or purple; her hair hanging before her eyes, her breasts like clouds, drops of water falling from her body, and in her hand Iris, or the Flower-de-luce.*

Virgil makes her the messenger of *Juno* (where she is taken for the air) when he saith, *Irin de Cælo misit Saturnia Juno.*

IX. *Nympha Diana*; Let them be cloathed in white linnen to denote their Virginitie, and their garments girt about them; their Arms and Shoulders naked; bows in their hands, and arrows by their sides.

X. *Aurora*, the Morning. A young Virgin with carnation wings and a yellow mantle; in her forehead a star, and Golden Sun-beams from the Crown of her head, riding upon *Pegasus*, with a viol of dew in one hand, and various flowers in the other, which she scattereth upon the earth.

CHAP. XXXIII.

Of the Nine Muses.

I. *Clio*, She is drawn with a Coronet of Bays; in her right hand a Trumpet; in her left a Book, upon which may be written *Historia*; her name is from praise or glory.

II. *Euterpe*, Is crowned with a garland of flowers, holding in each hand sundry wind instruments; her name is from giving delight.

III. *Thalia*. Draw her with a smiling look, and upon her Temples a Coronet of Ivy, a Mantle of Carnation embroidered with silver twist and gold spangles, and in her left hand a vizard; her Ivy shews she is mistress of Comical Poesie.

IV. *Melpomene*. Draw her like a Virago, with a majestick and grave countenance, adorn her head with Pearls, Diamonds and Rubies; holding in her left hand
Scepters

Chap. 33. Of the Nine Muses. 319

Scepters with Crowns upon them, other Crowns and Scepters lying at her feet: and in her right hand a naked Poniard, in a Mantle of changeable Crimfon. Her gravity befits Tragick Poesie.

V. *Polyhymnia*. Draw her acting a Speech with her fore-finger, all in white, her hair hanging loose about her shoulders of an orient yellow, upon her head a garland of the choicest jewels intermixt with flowers, and in her left hand a book, upon which let be written *Snadere*; her name imports memory, to whom the Rhetorician is beholden.

VI. *Erato*. She hath her name from *Eros*, *Amor*, *Love*: draw her with a sweet and comely visage, her temples girt with Myrtles and Roses, bearing an heart with an Ivory Key; by her side *Cupid*, winged, with a lighted torch; at his back, his bow and quivers.

VII. *Terpsichore*; a cheerful visage playing upon some Instrument; upon her head a Coronet of Feathers of sundry Colours, but chiefly green; in token of the victory which the Muses got of the Syrenes, &c. by singing.

VIII. *Urania*. A beautiful Lady in an azure robe; upon her head a Coronet of bright stars; in her right hand the Cœlestial globe, and in her left the Terrestrial. Her name imports as much as heavenly; *Urania cœli motus scrutatur & Astra*.

IX. *Calliope*. Upon her head draw a Coronet of Gold; upon her left arm Garlands of Bays in store, for the reward of Poets; and in her right hand three books, upon which write *Homerus*, *Virgilius*, *Ovidius*.

The Muses had their names, as Eusebius saith, *μαθήματα*, which is to instruct, because they teach the most honest and laudable disciplines.

CHAP. XXXIV.

Of the four winds.

I. **E***urus*, the East-wind. Draw a youth with puffed and blown cheeks (as all the other winds must be) wings upon his shoulders, his body like a Tawny-Moor, upon his head a Red Sun.

II. *Zephyrus*, the West-wind. Draw a youth with a merry look, holding in his hand a Swan, with wings display'd as about to sing, on his head a garland of all sorts of flowers.

'Tis called Zephyrus quasi Zwin p'essor, bringing life, because it cherisheth and quickneth.

III. *Boreas*, the North-wind. Draw it like an old man, with a horrid, terrible look; his hair and beard covered with snow, or the hoar-frost; with the feet and tail of a Serpent.

IV. *Auster*, the South-wind, is drawn with head and wings wet, a pot or urn pouring forth water, with which descends frogs, grasshoppers, and the like creatures which are bred by moisture.

CHAP. XXXV.

Of the Months of the Year:

I. **J***anuary* must be drawn all in white, like snow or hoar frost, blowing his fingers; in his left arm a billet, and *Aquarius* standing by his side.

II. *February* is drawn in a dark skie colour, carrying in his right hand *Pisces*, or Fishes,

III. *March*

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III. *March* is drawn tawny with a fierce look, a helmet upon his head, leaning upon a Spade: in his right hand *Aries*; in his left Almond Blossoms and Scions; and upon his arm a basket of Garden-seeds.

IV. *April* is drawn like a young man in green, with a garland of Myrtle and Hawthorn-buds, winged; in the one hand Primroses and Violets; in the other *Taurus*.

V. *May* is drawn with a sweet and lovely aspect, in a robe of white and green, embroïdered with Daffadils, Haw-thorn and Blew-bottles; on his head a garland of white, red, Damask-roses; in the one hand a Lute; upon the fore-finger of the other a Nightingal.

VI. *June* is drawn in a mantle of dark grass-green; upon his head a Coronet of Bents, King-cobs, and Maiden-hair; in his left hand an Angle; in his right *Cancer*; and upon his Arm a basket of Summer fruits.

VII. *July* is drawn in a Jacket of a light yellow, eating Cherries, with his face and bosome Sun-burnt, on his head a garland of Centaury and Tyme, on his shoulder a Sithe; with a bottle at his girdle, carrying a Lion.

VIII. *August* is like a young man of a fierce look, in a flame-coloured robe; upon his head a garland of wheat; upon his arm a basket of Summer fruits; at his belt a Sickle, bearing a Virgin.

IX. *September* is drawn in a purple robe, with a cheerful look, and on his head a Coronet of white and purple Grapes; in his left hand a handful of Oats, with a *Cornucopia* of Pomegranates and other Summer fruits; and in his right hand a ballance.

X. *October* is drawn in a garment of the colour of decaying flowers and leaves; upon his head a garland of Oak-leaves with the Acorns; in his right hand a Scorpion; in his left, a basket of Services, Medlars and Chestnuts.

XI. *November*

XI. *November* in a robe of changeable green and black : upon his head, a garland of Olives with the fruit, in his right hand *Sagittarius* : and in his left bunches of Parsnips and Turneps.

XII. *December* is drawn with a horrid aspect, clad in an *Irish* rug, or course Freeze girt about him : upon his head three or four night-caps, and over them a *Turkish* turbant ; his nose red, beard hung with Iceikles ; at his back a bundle of Holly and Ivy, holding in furred mittens a Goat.

Where note, it will be good to give every month its proper and natural Landskip ; not making blossoms and fruits upon trees in December ; nor a barren face of the Earth and trees in June.

CHAP. XXXVI.

Of Painting of the Face and Skin.

I. **T**WO wayes there be of adorning of the Face and Skin ; the first is by Painting : the second is, by application of Excellent cosmeticks, which give a very natural, absolute and lasting beauty.

The first way, which is that of Painting, is the subject matter of this Chapter. Some may wonder that we should meddle with such a subject as this, in this place ; but let such know ; the Painting of a deformed Face, and the licking over of an old, withered, wrinkled and weather-beaten skin, are as proper appendices to a Painter, as the rectification of his Errors in a piece of Canvase : Nor is there any reason, but that the Artist should shew his care in the one, as well as to expose his skill in the other, since a *single deformity*

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in the body, begets a complication of miseries in the mind, and a unity of defects a multiplication of Evils.

And though some think the Poets did not much amiss, to fancy the creature to be hatcht in Hell, by reason it brings with it such a torrent of dejections, yet let those darkned souls, (who are so much affrighted at its cloudy adumbrations) understand, that when time shall have made its full revolution, themselves may be the product of such a conception: But we confess, it seeks darkness, and only solaces it self in obscurity and dusky solitudes. For such whose bodies have passed the stamp with some faults, and have missed the impressions or reflexions of beauty, which might make them delectable in humane society, *ever make choice of darkness as their chief companion.* Deformity is a disease esteemed the most pernicious, and its issue is a matter of dangerous consequence, chiefly *obstructions to Ladies Preferment.* Now to prevent this danger, to take away these obstructions, and to deliver you from the embraces of so hideous a monster (which some esteem as a Fury of Hell) these *Cosmeticks* we have offered upon the *Altar* of your defects; protesting that the use of these beautifiers, will make you as fit for the entertainment of Courtiers, as ever you were before for the courtship of *Grooms* or *Hofstlers*, and make your *rusty skins* and *ill-look'd faces*, to out-shine with a radiant lustre, the most splendid of all the *Nymphs of Diana.* Though you may look so much like the Image of death, as that your skins might be taken for your winding-sheets, yet by our directions you may attain such a rosid colour, and such a lively cheerfulness, as shall not only make you look like natures workmanship, but also put admiration into the beholders, and fix them in a belief, that you are the first-fruits of the resurrection. Thus we teach you

lippid

lippid mortals to retrace the steps of youthfulness, and to transform the wrinkled hide of *Hecuba*, into the tender skin of the Greatest of beauties; which then you will dull by the advance of your features, and make all conceited shadows of glory, to vanish in your presence. When once your artificial heat shall appear, others shall seem pale with envy for your perfections; and their *natural ruddiness* shall only serve them to *blush*, to see their features clouded by your splendor, who will seem like brown bread compared with Manchet, or rather like wooden dishes upon a shelf of China ware, or as another once said, like blubber'd jugs in a cupboard of Venice glasses, or as earthen piss-pots in a Goldsmiths shop. By this means your sparkling Glories shall fire *Platonick Lovers*, so that none though as cold as *Saturn*, shall be able to resist your actuating flames, but shall force the stoutest heart, to be a *Sacrifice to love*. If any remain unscorched, it must be only those leaden hearted Cowards, who dare not *approach* your flames, for fear of *melting*; or those undeserving soldiers of *Venus* (of a frigid constitution) who dare not so much as *look* upon your youthful fire, for fear of being burnt to ashes. But it may chance that some *Saint* or another, may condemn your *hearts* for *evil*, because you strive to make your *faces good*; and may like your *in-side* the *worse*, because your *out-side* may look *so well*; yet with *Benjamin*, refuse not the many messes of Pottage, nor yet the many changes of Raiment (although one might well enough serve your turn) but receive them from the hands of *Joseph*, though all the rest of the Brethren be angry. Avoid not company for want of beauty, when Art affords an innocent supply, but with *confidence* crucifie that evil conscience, which forbids the use of a little oyl to make a cheerful countenance, and the drinking of a little wine

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wine to make a merry heart. Borrow our Artificial beautifiers, and become *splendid*, that you may be fit to be gathered by the hand of some metamorphosed *Hero*; lest in the garden of *Deformities*, growing green with *sickness*, you should be taken for *thistles*, and so cropp'd by *Asses*.

II. To cleanse the face and skin.

Before any thing be used to paint, or make the skin beautiful, it must be made very clean thus: first wash with warm water, and sweet scented wash-balls very well; then rub the face with a cloth, and wash well with water in which Wheat-bran is boiled; so is the skin prepared.

Or thus, Take *Sublimate* one ounce, glair of six eggs, boil them in a glass vessel, till they grow thick, then press out the water, with which wash the skin.

III. To make a white Fucus or Paint.

Take Talk and powder it, by beating of it in a hot mortar, to the powdred Talk add distilled Vinegar, boil it at a gentle fire in a wide glass, let the fat froth that swims at top, be taken off with a spoon; then evaporate the Vinegar, and mix the remaining cream with flegm of common Salt, or a little *Pomatum*, with which wash or anoint the face, and it will beautifie it much.

IV. Another very excellent.

Take Crude Talk in powder one ounce, oil of Camphire two ounces, digest till the oil is white; it is a noble *Fucus* for Ladies faces.

V. To make the aforesaid oil of Camphire.

Take Camphire four ounces, Bole twelve ounces, make them into balls and dry them in the Sun, then distill them in sand in a glass retort, into a receiver that hath distilled rain water therein: first there will come forth a white matter, which melts in the Alembick, and

and falls into the receiver, then a clearer water ; and at last with a stronger fire, the oil we speak of, sweet scented, which rectified with spirit of wine will be yellow as Gold.

VI. *Another excellent Fucus made of Pearl.*

Dissolve Pearl in distilled Vinegar ; precipitate with oil of Sulphur per Campanam ; then sweeten and digest with spirit of wine ; abstract the spirit, and you have a magisterial *Fucus* will melt like Butter.

VII. *To make the best Fucus or Paint as yet known.*

Take Venetian Talk, cleave it into slices, digest it in the heat of the Sun, or of a horse-dunghil for a month, with distilled vinegar, made of Spanish wine, adding every day new distilled vinegar to the former, till the vinegar be mucilaginous ; which them distill by a luted retort and a large receiver with a naked fire. First there comes forth the vinegar ; then a white oil, which separate. After you have cleansed the skin by the second Section, then first wash with the vinegar, after anoint with the oil : if the face be first well wash'd from all impurity, this one anointing may hold for a month without fading. *This Cosmetick if rightly prepared, is worth about five pound an ounce.*

VIII. *An excellent Fucus made of Bulls gall.*

Take Bulls galls dried in the Sun, whose tincture extract with spirit of wine, with which besmear the face, (being cleansed by the second Section) leaving it on for three or four dayes, without going abroad, or exposing the skin to the air : at the end of the time cleanse the face by the second Section : so almost to a miracle, the skin of the face and neck is rendred most gratefully white, soft, delicate and amiable. This is the *Spanish Fucus* which several Ladies now use.

IX. *To make an excellent red Fucus.*

Make a decoction of red Sanders in double distilled vinegar,

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vinegar, adding a little Alom, with a few grains of Musk, Amber-griese, or of some sweet Spices, and you will have a perfect red *Fucus* for the face.

X. *Another very excellent.*

Take juice of Clove-gilliflowers, with which mix a little juice of Limons: with this paint your face, and you shall have a pleasing red colour.

XI. *To do the same another way.*

Make a strong infusion of Clove-gilliflowers in rectified spirit of wine, adding a few drops of oil of Vitriol, or instead thereof a little Alom, and the juice of a Citron or Limon; so shall you have an excellent colour to beautifie the face with.

XII. *A Fucus or Paint not easie to be discovered.*

Take seeds of Cardamoms or grains of Paradise, Cubebs, Cloves, and raspings of Brazil, which infuse in rectified spirit of wine for ten dayes, over a gentle heat; then separate the spirit: this is so perfect a Fucus, that it may deceive any man, for this clear water gives a fresh, red and lovely colour which will last long.

XIII. *A Fucus or Cosmetick of river Crabs.*

Take of the flesh which remains in the extremities of the great claws of river Crabs (being boiled) a sufficient quantity, which dry gently, and then extract a deep tincture with rectified spirit of wine; evaporate part of the *menstruum*, till the tincture have a good thickness or body; with which (the skin being cleansed) anoint the cheeks first, applying over it some other al-bifying Cosmetick.

XIV. *Spanish wooll, wherewith women paint their faces red.*

Boil shearings of Scarlet in water of quick-lime half an hour, of which take two pound, to which put Brazil two ounces (rasped) Roch Alom, Verdegriese,
of

of each one ounce, Gum-Arabick two drachms, boil all for half an hour, which keep for use.

XV. *To do the same another way.*

Take Spirit of wine one pound, Cocheuele half an ounce, rasped Brazil one ounce, Gum-Armoniack three drachms, mix and digest till the Gum is dissolved; then boil it gently, and strain it for use, into which you may put old linnen rags, or Spanish wooll at pleasure.

CHAP. XXXVII.

Of Cosmeticks which beautifie without any thing of Paint.

I. **A**N excellent Cosmetick or Liquor of Talk. Take powder of Talk (made by rubbing it with pumice stones; or beating it in a very hot mortar; or filing it with a Goldsmiths smoothing file) eight ounces, *Salis Tartari* sixteen ounces, calcine it twelve hours in a wind furnace, and set it in a Cellar, separating that which melts, from that which doth not: then calcine this dry Calx added to four times its weight of Sal-nitre, with a strong fire, so the Talk will be melted into a clear white mass, which being set in a Cellar will turn to a clammy liquor.

This wonderfully whitens and beautifies the skin, and takes away spots and freckles from the face: but you must not leave the liquor long on, but wash it off with decoction of wheat bran, that it corrode not the skin.

II. *To make the skin soft and smooth.*

The face being very clean, by the second Section of the six and thirtieth Chapter, wash it very well with a *Lixivium* of Salt of Tartar, and after that anoint

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it with *Pomatum*; or which is better, oil of sweet Almonds, doing this every night going to bed. The *Pomatum* we have taught the way to make in our *Synopsis Medicina*, lib. 3. cap. 58. Sect. 2.

III. *A water to cleanse the face from Scurfe and Morphew.*

Take distilled rain water six ounces, juice of Limons twelve ounces, mix them, and wash with it morning and evening, anointing after it at night going to bed with the oil or *Pomatum* aforesaid.

IV. *An Unguent which brings the skin to an exquisite beauty.*

Take of our *Pomatum* one ounce, Salt of Tartar one drachm, Musk twenty grains, mix them well, and (the face or skin being very clean) anoint morning and evening.

V. *A wonderful Cosmetick of great worth.*

Take white Tartar twenty ounces, Talk, Salt, of each ten ounces, calcine them in a potters furnace very well; then grinding the matter upon a marble, put it into *Hippocrates* his sleeve, and set it in a Cellar or other moist place for twenty or thirty days, and there will drop from it a precious oil; which being rubbed upon the skin softly with a linnen cloth (the skin being duly cleansed first) takes away all kind of spots, and makes the skin soft and delicate.

VI. *A cheap, yet excellent Cosmetick.*

Take Alom in fine powder, and shake it with whites of new laid eggs, being a little heated, till such time as they grow thick to an ointment, with which anoint the face morning and evening three or four days; and it will take away spots and wrinkles, and make the skin grow clear and fair.

VII. *An excellent Mercurial Cosmetick prevalent against most deformities of the skin.*

Y

Take

Take Mercury purified from all blackness half a pound, Mercury *Sublimate* in powder as much, mix them in a stone or marble mortar; put them into an Alembick of a strait Orifice, put on distilled Vinegar, till all be covered three or four fingers, letting it stand four days, daily stirring the same at certain times, then it extracts a whitish powder; the whitish Vinegar by inclination separate, rejecting it, and put on other Vinegar: the powder at bottom keep so for some days: which labour you must so often reiterate, till you have abundance of that white powder, which dry, and keep for use: anoint with it, by mixing with it a little distilled rain water, and it will take away all blemishes of the skin, as also Tetters. Use it not too often, and beware you touch neither eyes nor teeth with it.

VIII. *Another of great estimation.*

Take Mercury *Sublimate*, *Saccharum Saturni* of each two drachms, Rose water, juice of Limons of each two ounces, mix them like to an ointment, with which anoint gently at night, and the next morning with the Pomatum aforesaid.

IX. *To make a kind of Lac Virginis, an excellent Cosmetick.*

Take distilled rain water a quart, *Saccharum Saturni* crystallized one ounce, mix them, and then wash with the water, being settled: the fine white powder at bottom, is also an excellent fucus or paint, which may be laid upon the skin if very clear: note, some use Vinegar instead of the rain water.

X. *To make Oleum Tartari per deliquium.*

Take Salt of Tartar, which put into a bag with a corner in a moist Cellar, and the oil will distil therefrom in drops: with this oil you may mix a little fair water, and wash your face at night going to bed; and the

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the next morning, the face being very clean, you may wash with the aforesaid *Lac Virginis*; thus continuing for some days, you may create an exquisite and lasting beauty.

XI. *A compound Cosmetick esteemed by some of great force.*

Take of the aforesaid *Lac Virginis* one ounce, oil of Tartar aforesaid half an ounce, mix them, with which wash morning and night for about a week or more, as you shall see occasion; then anoint with the following ointment.

XII. *To make the Cosmetick Ointment aforesaid.*

Take musk three drachms, ambergriefe two drachms, civet one drachm, grind them upon a porphyre or marble stone, with oil of Ben and Rhodium of each three ounces, with which anoint as aforesaid: note, some instead of the oil of Ben, use oil of sweet Almonds.

XIII. *A vegetable Cosmetick.*

Besmeare your face or skin at night going to bed, with the juice of Wake Robin; it is excellent.

XIV. *An incomparable Cosmetick of Pearl.*

Dissolve Pearls in juice of Limons or distilled Vinegar, which digest in Horse-dung, till they send forth a clear oil, which will swim on the top: this is one of the most excellent Cosmeticks or Beautifiers in the world: *this oil if well prepared is richly worth seven pound an ounce.*

XV. *A Cosmetick ointment of great worth.*

Take of our *Pomatum* aforesaid six ounces, *Saccharum Saturni* two ounces, mix them, and anoint morning and evening.

XVI. *Another very good for the skin.*

Mix *Saccharum Saturni* one drachm, in Vinegar half an ounce, which mingle with the glair of eggs, and anoint with it.

XVII. *A Cosmetick wonderful to make a pleasing ruddy complexion.*

Take oil of Tartar four ounces, Alom, Sal Gem, of each one ounce, Borax, Camphire of each half an ounce, beat them well together, to which add of Briony water a pint, distil them in *Balneo*, and you will have your desire.

XVIII. *Another for the same.*

Take Madder, Myrrh, Saffron, Frankincense, of each alike, bruise and steep all in White-wine, with which anoint the face going to bed, and in the morning wash it off, and the skin will have a gallant pleasing blush.

XIX. *To make the Cosmetick of Myrrh, very excellent.*

Boil eggs till they are hard, slit them and take out the yolks, fill them up with powdred myrrh, close them together, and lay them in a moist Cellar, and the myrrh will dissolve into oil.

XX. *To make a very good Wash to whiten the skin, and give a good complexion.*

Take Limons, hens eggs boiled, of each twelve, Turpentine eight ounces, distil all in *Balneo Maria*, with which wash: when you wash, you may drop into it a drop, two or three of oil of Oranges or Cinamon, for fragrancy sake.

XXI. *A Cosmetick to make a rough skin smooth.*

Take sweet Almonds blanchd four pound, moisten them with spirit of wine and rose water mixt together, of each two ounces, beat them together and fry them; and when they begin to smok, put them into a bag, and press them (in a press made for that purpose) and there will come forth a very clear oil; which put into rain water, and beat it till it is exceeding white.

C H A P. XXXVIII.

Of Cosmeticks, which remedy the various Vices of the skin.

I. **T**O take away Sun-burnings.

To glair of ten eggs put Sugar-candy one ounce, and anoint with it going to bed: or anoint with the juice of Sow-bread at night going to bed; and in the morning with oil *Omphacine*. The like effects hath our *Lac Virginis* at the ninth Section of the seven and thirtieth Chapter, as also *Oleum Tartari*, and other things of like nature.

II. *To take away redness and Pimples.*

First prepare the skin by bathing it often with the decoction of wheat-bran, and applying pultisses of bread, milk and oil thereto: when the skin is thus suppled and rarified, you may cure them either by our liquor of Talk, at the first Section of the seven and thirtieth Chapter, or mercurial Cosmetick at the seventh Section of the seven and thirtieth Chapter, or our *Lac Virginis* and oil of Tartar at the ninth and tenth Section of the seven and thirtieth Chapter, or by often washing with juice of Limons.

III. *To take away Freckles.*

Take juice of Limons, put it into a glass bottle, to which put fine Sugar, and *Borax* in powder, digest it eight days in Sand, then use it; or mix *Sal Tartari* with whites of eggs, and apply it; or often use our compound Cosmetick at the eleventh Section of the seven and thirtieth Chapter, or oil of Tartar alone, for some weeks; but if all fail, you must have recourse to our Liquor of Talk at the first Section of the seven

and thirtieth Chapter, or Mercurial Cosmetick at the seventh Section of the seven and thirtieth Chapter.

IV. *To take away spots from the face or skin.*

This is done by anointing with oyl of Tartar for ten days; and after all that to wash it with a *Lixivium* of *Quick-lime* in which *Sal-armoniack* hath been dissolved for a long time: or you may use the Cosmetick at the third Section of the seven and thirtieth Chapter camphorated.

V. *To cleanse a scurfy skin.*

If the creature be fat, foment first with a *Lixivium* of Salt of Tartar; but if lean, make a fomentation of Borrage, Bugloss and Mallow leaves, which use for some days: this being done, bath the place where the scurf is, with *Spiritus Nicotiane* made by fermentation, which being dried in, anoint first with oil of Tartar, then with oil of Almonds; repeating the three last works, so often till the scurf goes away.

If all these fail, you must have recourse to our liquor of Talk, or Mercurial Cosmetick; or those at the fifth and eighth Section of the seven and thirtieth Chapter, which without doubt will perform your desire.

VI. *To free the Skin from Tetters and Ring-worms.*

Dissolve *Sublimate* one ounce in a glass of Red-wine by boiling, with which wash the place morning and evening, letting it dry of it self, for three or four days together, and it will certainly cure: if they be not inveterate, our liquor of Talk at the first Section of the seven and thirtieth Chapter, or Mercurial Cosmetick may sufficiently do; or you may anoint with this ointment. Take *Sal Tartari* two drachms, burnt Alom three drachms, powder and incorporate with whites of eggs: Or this, take *Sulphur vive* three drachms, Camphire one drachm, Hogs-griese two ounces, mix and make an ointment.

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VII. To take away wrinkles from the skin.

Take oil of Almonds, lees of oil Olive, and make them into an ointment with wax, powder of Camphire and Mastich, with which anoint. Oil of Myrrh to anoint with, is eminent in this case: or wash with a decoction of Briony roots and figs of each alike: or dissolve Gum Tragacanth in *Lac Virginis*, and wash with that. Excellent good is a strong decoction of Pomegranate pills in White-wine, to wash often with.

VIII. To take away Warts.

The juice of the greater Spurge with Salt anointed, takes them away, so also a continual washing with a Lixivium of Quicklime and Salt of Tartar. The juice of *Verrucaria* performs the same. A plaister of *Cantharides* with a defensative is very good in this case: so also this following wash: take *Saccharum Saturni* three ounces, *Sal-Armoniack* one ounce, Vitriol common six drachms, Quicklime eight ounces, boil all in water four pound to the consumption of the half, with which often bath the warts, and then wash with our Mercurial water. Black Soap hath often been found very good; but especially a plaister of Turpentine.

IX. To heal Chaps in the skin.

Our *Pomatum* in this case is most excellent: yet this following is commendable. Take Capons gries mixed well with Camphire, and anoint with. Oil of Turpentine two drachms, mixed with *Unguentum Populeon* two ounces, is very good. So also oil of Roses mixed with Sheep Suet and wax to an ointment.

X. To heal Burnings and Scaldings.

Excellent good is the *Unguentum Rubrum* in our *Synopsis Medicinæ lib. 3. cap. 58. Sect. 1.* both to draw out the fire, and to heal. To draw out the fire also, glair of eggs mixed with Rose-water, is very prevalent:

so also is Salt, raw Onions, Soap, Yest, Oil of Tartar and the like. To hinder the rising of the blisters, Hens dung three ounces, mixed with hogs griese four ounces, and Salt of Tartar one ounce is very good; so also a cataplasme of Honey and crums of bread; but best of all a plaister of strained *Opium*, which performs all the intentions to admiration. If the blister break, it may be presently skinned by anointing with oil of eggs, and washing often with *Lac Virginis*, strewing upon the sore, powder of Bole, Tutty, Ceruse or the like.

XI. *To take away scars and marks of the small Pox.*

Take of oil of Tartar one ounce and half, Ceruse dissolved in oil of Roses one ounce, *Borax* and *Sal Gem* of each one drachm, mix and make an ointment, with which anoint. Oil of Tartar alone performs this work well: so Salt of Tartar, mixed with powder of Myrrh and oil of Roses.

XII. *To beautifie the hands.*

To make them soft, often anoint with the oil of Almonds or our *Pomatum* at night going to bed, washing them the next morning with decoction of wheat-bran: after a while wash them with Salt of Tartar, dissolved in fair water, perfumed with oil of Cloves, Oranges, Rhodium or Cinnamon. Or this, take Venice Soap dissolved in juice of Limons one pound, Virgin-honey four ounces, Sublimate, Orice root, Sugar, Salt of Tartar, Alom, Borax of each one ounce, Balsom of *Pern* two drachms, oil of Cloves one drachm, oil of Rhodium and Cinnamon of each half a drachm, make a mixture to wash the hands withal: Or this, take powder of Venice Soap one pound, Orice root eight ounces, *Amylum* six ounces, mix them and make an ointment with *liquid Storax* and oil of *Benjamin* a sufficient quantity; it wonderfully whitens, smooths and sweetens

Ch. 39. Of making a sweet Breath. 337

sweetens the hands. To anoint also with a Bulls gall is very good.

XIII. To help hands which are swoln, and look red or blew with cold.

What we even now said (in the last Section) may be said again here: to which we add, that a long bathing of them in a lather of Castle Soap, is very good if it be done: or if a repercussive plaister be applied made of barley meal, *Saccharum Saturni*, and oil of Myrtles; washing (after the coming off of the Cataplasme) with juice of Limons or white-wine Vinegar: a plaister of Turpentine mixed with Salt is good. Often to anoint the hands with oyl of Roses, Almonds, or *Pomatum* at night, and the next morning with the *Lac Virginis* prevails much. Oil of Anniseeds, Caraways and Fennel prepared chymically, as also Cloves and Oranges, mixed with oil of Almonds and often used, are eminent above all other things.

C H A P. XXXIX.

Of making a sweet Breath.

I. **A** Stinking Breath comes from one of these four causes, viz. Putrified Lungs, defective Teeth, a distemper of the Head, or obstruction of the Stomach.

II. To remedy a Stinking Breath coming from putrified Lungs.

Take *Unguentum Nicotiana* one ounce, *Oleum Succini* two drachms, mix them and anoint the breast outwardly; inwardly give cleansers, (as oil of Sulphur allayed with Rose water) morning and evening; as also *Antimonium Diaphoreticum* ten grains five times a day

day for several days together ; then heal by giving oil of Almonds mixed with a few drops of oil of Cinnamon, or Pills of Turpentine : Lastly, morning, noon and night let this bolus be abhibited, take Nutmegs, Mace, Ginger, of each fifteen grains, honey two drachms, oil of Cinnamon ten drops, mix them, and continue it for some weeks.

III. To help the defects of the Teeth.

1. *If the teeth be furred over*, rub them every morning with *cremor Tartari* in powder, and wash them with White-wine. 2. *If the teeth be black* ; allay oil of Sulphur or Vitriol in Rose-water, and scowr them well therewith, with the end of a stick and a rag, till all the blackness be gone ; then rub them with oil of Almonds perfum'd with oil of Cinnamon. 3. *If the teeth be loose*, first rub them with this powder, take Galls, Pomegranate flowers, Sumach, Cyperus, of each one ounce, Roch Alom half a pound, powder them all for use ; then use this Gargarisme. Take Galls one ounce, Myrrh, Pomegranate peels of each half an ounce, boil them in White-wine vinegar for a Gargarisme. Lastly, morning, noon and night wash the gums with good red Wine ; by this means the teeth will be fastned and the gums restored. 4. *If they be in danger of rotting* ; take ashes of Harts-horn, magistery of Coral of each one ounce, musk, or instead thereof oil of Cinnamon, ten grains, mix for a dentifrice to rub the teeth withal, it will keep them white and sound. 5. *If they be rotten and hollow* ; make little pellets of strained Opium, Myrrh and oil of Cinnamon, and put them into the hollow tooth. 6. *If they ach* ; use the aforesaid pellets, or make little ones of *Laudanum Paracelsi*, and put them into the hollowness : or if they be not hollow, tye a little pill of the same up in a fine thin rag, and hold it between the aking teeth. 7. *If they stink* ; often wash

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wash them with wine or spirit of wine, in which a few drops of oil of Cinnamon and *adeps Rosarum* is dissolved.

IV. To rectifie a Stinking Breath arising from distemper of the head.

Consider the cause of the distemper, whether it arises from the Pox, Imposthumes, or the like, and follow the method instituted in the cure of those diseases, and then the cause being taken away, the effects you will find will soon cease; yet nevertheless these following pills are excellent: take *Calx* of refined Silver made by spirit of Nitre, and well dulcified by washing in warm rain water, one ounce, *Resina Scammonii* one ounce and half, mix them for a mass of pills, of which take eight or ten grains at night going to bed every third, fourth or fifth day.

V. To rectifie a Stinking Breath arising from the obstruction of the Stomach.

This is done by opening and cleansing the Stomach thus. Take every evening going to bed half a drachm of *Pil. Ruffi* for ten or twelve days together: Or thus, first vomit with *Vinum Benedictum* one ounce or more, according as Strength requires, twice or thrice; then take *Pilula Rudii* half a drachm at a time, in the morning fasting, drinking after it some warm broth or posset drink, which repeat every third or fourth day four or five times.

VI. To rectifie the Breath, when it smells of anything that is eaten.

Chew Coriander seed or Zedoary in the mouth, drinking a good draught of wine after; the scent of the wine is taken away by eating sour apples or Quinces, or by chewing troches of Gum-Tragacanth perfumed with oil of Cinnamon.

C H A P. XL.

*Of beautifying the Hair.*I. *To dye the Hair black.*

This is done with the *Calx* of *Luna* (made by Spirit of Nitre) mixed with fair water, and the hair washed therewith, with a Sponge: it is the most excellent thing of that kind that is yet known.

II. *To keep the hair from falling off.*

Take Myrtle berries, Galls, Emblick Myrobalans of each alike, boil them in oil Omphacine, with which anoint: it is an excellent Medicine, yet as old as *Galen*.

III. *To remedy Baldness.*

This is a hard thing to cure, yet the following things are very good. Rub the head or bald places every morning very hard with a coarse cloth, till it be red, anointing immediately after with Bears grieve: when ten or fifteen days are past, rub every morning and evening with a bruised Onion, till the bald places be red, then anoint with honey well mixed with Mustard-seed, applying over all a plaister of *Labdanum* mixed with mice dung, and powder of Bees: do this for thirty days. If all the former fail, bath with a decoction of Bur-dock roots, made with a Lixivium (of Salt of Tartar) two parts, and muskadel one part; immediately applying this Unguent: take *Thapsi* or *Turbeth* one drachm (in powder) Bears grieve one ounce, mix them, which use for sixty days; if this make not the hair come, the defect is incurable.

IV. *To take away hair from places where it should not grow.*

Take Quicklime four ounces, *Auripigmentum* one ounce

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ounce and a half, *Sulphur vive*, Nitre, of each half an ounce, *Lixivium* of Salt of Tartar a quart, mix and boil all so long in a glazed earthen pot, till putting a quill therein, all the feathers peel off, and it is done. First foment the place with warm water a little before you use the aforesaid medicine ; a quarter of an hour after wash with very hot water ; then anoint with the aforesaid Unguent, and in a quarter of an hour it will do the work : when the hairs are saln away, remember to anoint with oil of Roses ; now to keep them from ever growing again, anoint for some days with an ointment, made of the juices of Henbane and Nightshade, *Opium* and Hogs griese.

V. To make the hair curl.

Wash the hair very well with a *Lixivium* of Quicklime, then dry it very well, that done anoint it with oil of Myrtles, or oil *Omphacine*, and powder it well with sweet powder, putting it up every night under a cap : if the party be naturally of a cold and moist constitution, the washing, anointing and powdring must be perpetually used once or twice a week during life, the hair being put up every night.

VI. To make hair lank and slag that curls too much.

Anoint the hair thoroughly twice or thrice a week with oil of Lillies, Roses, or marsh-mallows, combing it after it very well.

VII. To make the hair grow long and soft.

Distil Hogs griese or oil Olive in an Alembick with the oil that comes there-from anoint the hair, and it will make it grow long and soft : use it often.

VIII. To preserve the hair from splitting at the ends.

Anoint the ends thereof, with oil *Omphacine*, or oil of Myrtles, they are eminent in this case to preserve the hair from splitting, so also an ointment made of Honey, Bees wax and oil *Omphacine* or Bears griese.

CHAP.

CHAP. XLI.

Of the Art of Perfuming in general.

- I. **I**N this Art two things are to be considered, viz.
 1. The way and manner of making of Perfumes.
 2. The way and manner of Perfuming.
- II. The Perfume it self is considered, 1. In respect of its Form. 2. In respect of its Composition.
- III. The Form of the Perfume is either Water, Oil, Essence, Unguent, Powder, or Tablets.
- IV. The Making and Composition is taken from the Form and matter.
- V. The Matter is either Vegetable, Animal or Mineral.
- VI. The way of Perfuming is according to the matter to be perfumed.
- VII. The matter to be perfumed is either natural, as Hairs, Skins, Cloaths, Air, &c. or Artificial, as Pomanders, Powders, Wash-balls, Soaps, Candles, and other things of like nature.

CHAP. XLII.

Of the matter of which Perfumes are made.

- I. **T**HE ground of *Vegetable* Perfumes, is taken from *Flowers, Seeds, Herbs, Roots, Woods, Bark* and *Gums*.
- II. The chief *Flowers* for this use, are of Clove-Gilliflowers, Roses, *Jasemin*, Lavender, Oranges and Saffron.

III. The

III. The chief *Seeds* or fruits are Nutmegs, Cloves, Carraways, Grains, Seeds of *Geranium Moschatum*, and the Nut Ben.

IV. The chief *Herbs* are *Geranium Moschatum*, Basil, sweet Marjoram, Tyme, Angelica, Rosemary, Lavender, Hyssop, sweet Trefoil, Mint and Bay-tree leaves.

V. The chief *Roots* are of *Calamus Aromaticus*, Ginger, China, *Caryophyllata*, Indian Spicknard and sweet Orrice or Iris.

VI. The chief *Woods* are of yellow Sanders, *Xylbalsamum*, *Lignum Aloes*, and *Rhodium*.

VII. The *Barks* and *Peels* are of Cinnamon, Mace, Oranges, Limons and Citrons.

VIII. The chief *Gums* are Frankincense, *Olibanum*, Labdanum, Styrax, liquid Styrax, *Balsamum Verum*, Ambergriebe, *Styrax Calamita*, Benjamin, Amber, Camphire.

IX. The chief matters of Perfumes taken from *Animals*, are Musk, Zibet, Cow-dung and other turds.

X. Of *Minerals* there are two only, which yield a Perfume, and they are *Antimony* and *Sulphur*.

CHAP. XLIII.

Of the Oil of Ben.

I. **T**HE little Nut which the Arabians call *Ben*, is the same which the Latins call *Nux Unguentaria*; and the Greeks *Balanus Myrepica*; out of which is taken an Oil, of great use in the Art of Perfuming.

II. *To make the Oil of Ben.* Blanch the Nuts, and beat them very carefully in a mortar, and sprinkle them with wine, put them into an earthen or Iron Pan, and

and heat them hot, then put them into a linnen cloth, and press them in an Almond press; this work repeat, till all the Oil is extracted, so have you Oil of *Ben* by expression.

III. In like manner you may express the Oil out of Citron seeds, incomparable for this purpose, to extract the scent out of Musk, Civet, Amber and the like, because it will not quickly grow rank, yet Oil of the *Nut Ben* is much better.

IV. This oil of *Ben* hath two properties; the one is, that having no scent or odour of it self, it alters, changes or diminishes not the scent of any Perfume put into it: the other is that it is of a long continuance, so that it scarcely ever changeth, corrupts or putrifies, as other oils do.

V. To make a Perfume thereof, put the Musk, Amber, &c. in fine powder thereinto, which keep in a glass bottle very close stopped, for a month or more, then use it.

VI. Or thus, Blanch your Nuts, and bruise them, (Almonds may do though not so good) and lay them between two rows of Flowers, suppose Roses, *Jasemin*, &c. or other Perfumes; when the Flowers have lost their scent and fade, remove them, adding fresh ones; which repeat so long as Flowers are in season; then squeez out the oil, and it will be most odoriferous.

VII. Lastly, by this last you may draw a sweet scent out of those Flowers, out of which you cannot distil any sweet water.

CHAP. XLIV.

Of sweet Waters.

I. *The first sweet water.*

Take Cloves in powder two drachms, yellow Sanders, *Calamus Aromaticus* of each one scruple, *Aqua Rosarum Damascenarum* fifteen pound, digest four days, then distill in an Alembick; to this new distilled water put in powder Cloves, Cinnamon, Benjamin, *Storax Calamita* of each one drachm, distil again in *Balneo*; lastly put the water into a glass-bottle with Musk and Ambergriese of each ten grains, keep it close stopt for use.

II. *The second sweet Water.*

Take Damask Roses exungulated three pound, Flowers of Lavender and Spike of each four ounces, Clove-gilliflowers, and Flowers of *Jasemin*, of each two pound, Orange-flowers one pound, Citron peels four drachms, Cloves two drachms, Cinnamon, *Storax Calamita*, Benjamin, Nutmegs, of each two scruples all in powder, *Aqua Rosarum* six pound, digest ten dayes, then distil in *Balneo*: to the distilled water add of Musk and Ambergriese of each thirty grains.

III. *The third sweet Water.*

Take Roses, Clove-gilliflowers of each one pound, Flowers of Rosemary, Lavender, *Jasemin*, Marjoram, Savory, Time, of each three ounces, dry Citron peels one ounce, Cinnamon, Benjamin, *Storax Calamita*, of each two drachms, Nutmegs, Mace, of each one drachm, bruise the Herbs and Spices well, dig ft in the Sun two days, then distil in *Balneo*: to the distilled water add Musk in powder one scruple.

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IV. *The*

IV. *The fourth sweet Water.*

Take Cloves, Cinnamon of each one drachm, Mace, Grains, Musk, Ambergriese, Citron peels of each half a scruple, Benjamin, *Storax Calamita* of each one scruple, *Aqua Rosarum* twelve pound, digest fifteen days, then distil in *Balneo*.

V. *The fifth sweet Water.*

Take Rosemary-flower water, Orange-flower water of each five pound, Ambergriese one scruple, digest ten days, then distil in *Balneo*.

VI. *The sixth sweet Water.*

Take Roses two pound, Macaleb half a drachm, Ambergriese ten grains, bruise what is to be bruised, digest in sand three days, then distil in *Balneo*.

VII. *The seventh sweet Water.*

Take green peels of Oranges and Citrons of each four drachms, Cloves half a drachm, flowers of Spike six ounces, *Aqua Rosarum Damascenarum* six pound, digest ten days, then distil in *Balneo*.

VIII. *The eighth sweet Water.*

Take of the water at the fifth Section six pound, Musk ten grains, mix and digest them for use.

IX. *The ninth sweet Water.*

Take *Aqua Rosarum*, *Aqua Florum de Jasemin* of each four pound, Musk one scruple, digest ten days, then distil in sand.

X. *The tenth sweet Water.*

Take Damask-roses, Musk-roses, Orange-flowers of each four pound, Cloves two ounces, Nutmegs one ounce, distil in an Alembick, in the nose of which hang Musk three scruples, Amber two scruples, Civet one scruple, tyed up in a rag dipt in bran, and the white of an egg mixed.

XI. *The eleventh sweet Water, called Aqua Nansa or Naphe.*

Take

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Take *Aqua Rosarum* four pound, Orange-flower-water two pound, waters of sweet Trefoyl, Lavender, Sweet Marjoram of each eight ounces, Benjamin two ounces, Storax one ounce, Labdanum half an ounce, Mace, Cloves, Cinnamon, Sanders, *Lignum Aloes* of each one ounce, Spicknard one ounce; all being grossly beaten, digest a month, then in a glass retort distil in *Balneo*.

XII. *The twelfth sweet water, called Aqua Moschata.*

Take spirit of wine two pound, Musk three scruples, Amber two scruples, Civet one scruple, digest in the Sun twenty days close stopped in a glass vessel; a drop of this water put into any other liquor, will very well perfume it.

So may you extract the scent out of sweet Flowers, with this difference, that they lie but a little while, because their earthy substance will make the spirit ill-savoured.

CHAP. XLV:

Of Perfuming Oils.

I. **T**O make Perfuming Oils by infusion.

This is taught fully at the fifth Section of the three and fortieth Chapter aforegoing.

II. *To make Oleum Imperiale.*

Take Ambergriese four drachms, *Storax Calamita*, eight ounces, Rose-water, *Oleum Rosatum* of each two pound, oil of Cinnamon and Cloves of each half a drachm, put all into a glass, and digest in horse dung twenty days: this done, gently boil all for a quarter of an hour, which then let cool; with a spoon take off the oil which swims a top, to which put of Musk and

Zibet of each two drachms, digest all in a gentle heat for twenty days, and keep it for use. Where note the Amber and Storax at bottom will serve to make sweet balls of, to lay among cloaths, or beads to carry in ones hands; or for a perfume to burn.

III. *To make Oil of Cinnamon.*

Digest Cinnamon grossly bruised in spirit of Wine, sharpened with oil of Salt, in a glass vessel, with a blind head closely luted, in a gentle heat for ten days, then distil in an Alembick, as we have more at large taught in our *Synopsis Medicina*, lib. 3. cap. 47. sect. 1. it is a wonderful Perfume, the most fragrant and pleasant of all Oils, as well in taste as smell: the use of it will certainly take away a stinking Breath.

IV. *To make Oil of Roses, called adeps Rosarum.*

Take Damask Roses, pickle them with Bay salt, and after three months, with a large quantity of water distil in ashes with a gentle fire, to have you Oil, and Spirit or water, which keep for other distillations. *Weckerus* hath it thus,

Rosarum folia in umbra aliquandiu asservata in matula vitrea magna ponantur, cujus sit fundus latus, & ad dimidium vas impletur: inde affunditur ipsis Rosarum foliis tantum aqua rosacea stillatitia, quantum satis fuerit, ut optimè madeant: appositæque pileo vitreo cæco, stipatisque optimè rimis cera gummata, quindecim diebus equino fimo macerantur: sic tamen, ut mutato, cum frigescente cæperis, fimo, calor æqualis servetur. Apposito mox matula rostrato pileo, igne moderato cinerum, aqua omnis elicitur: qua rursus in eadem matula, optime priùs à facibus mundata, ablutæque ponitur, & calentis aqua balneo lentissimo igne elicitur, dum tota in vas recipiens abeat. Nam in fundo matula remanebit oleum rosarum, colore rubrum, perspicuum, & Moschi odore suaviter fragrans.

This

Chap. 46. Of Perfuming Essences. 349

This is the greatest of all vegetable perfumes, and of an inestimable value.

V. *To make Oil of Calamus Aromaticus.*

It is made as oil of Cinnamon: it is a very great perfume, helps a stinking breath, vomiting, weak memory, &c.

VI. *To make Oil of Rhodium.*

It is made as oil of Cinnamon: is a very excellent perfume, good for the head, breath and the senses.

VII. *To make Oil of Indian Spicknard.*

By infusion it is made by the first Section; by distillation, as oil of Cinnamon. It is an eminent Perfume.

VIII. *To make Oil of Benjamin.*

Take Benjamin six ounces in powder, which dissolve in oil of Tartar and *Aqua Rosarum* of each one pound, which distil with a close pipe in an Alembick. So is made oil of *Storax* and *Labdanum*.

IX. *To make Oil of Storax compound.*

Take oil of Ben, or sweet Almonds one pound, *Storax* grossly beaten four ounces, Benjamin, Cloves, of each two ounces, digest (till the Gums are melted) over hot coals; then press out the oil diligently.

CHAP. XLVI.

Of Perfuming Essences.

I. **T**He way to extract Essences is somewhat difficult, viz. by Distillation, Calcination, Digestion or Menstruum.

II. If by Menstruum, use not a watry one for a watry essence; nor an oily one for an oily essence; because being of like natures, they are not easily separated;

rated; but on the contrary, chuse an oily *Menstruum* for a watry essence, and a watry *Menstruum* for an oily essence.

III. If the essence of any metal be to be extracted by a *corrosive menstruum*, after the work is done, separate the salts from the waters, and use only those salts which will be easily taken out again; *Vitriol* and *Alom* are very difficult to be separated by reason of their earthy substance.

IV. To extract the essence out of *Musk*, *Ambergriese*, *Civet*, and other *Spices* or *Aromaticks*.

Mix the perfume with oil of *Ben*, which in a glass-bottle set in the Sun or Sand for ten days, then strain it from the dregs, and the essence will be imbibed in the oil. Then take spirit of Wine, and distilled fountain water, which mix with the said oil, and digest for six days: then distil in sand; so will the essence and water ascend, (the oil remaining at bottom without any scent) that essence and water distil in *Balneo* in a glass vessel, till the water be come off, and leave the essence in the bottom in the form of oil.

V. Another way to do the same.

Infuse the matter in spirit of Wine a sufficient quantity, digest and ferment for ten days, then distil in sand, as long as any water will come over (but have a care of burning) which distilled Liquor draw off in *Balneo*, with a very gentle heat and the quintessence will be left in the bottom, of a liquid form.

VI. To extract the essence out of *Herbs* and *Flowers*, as of *Sweet Marjoram*, *Basil*, *Orange-flowers*, *Jasemin*, &c.

Bruise the matter, and put it into a glass vessel to ferment in Horse-dung for a month; then distil in *Balneo*: ict it in dung for a week again, and distil in *Balneo* again; which reiterate so long as it will yield any liquor; put the distilled matter upon the *Caput mor-*
tuum,

Chap. 47. Of Perfuming Unguents. 351

tuum, distilling thus for six days: draw off the water in *Balneo*; and the essence remaining express in a press: which being a week fermented in dung, will yield the perfect scent, colour and vertues of the matter desired.

VII. *To extract the essence out of Salts.*

Calcine the Salt, and grind it very small, then lay it upon a marble in a moist Cellar, setting under it a pan to receive the dissolution; therein let it ferment for a month, then with a gentle fire distil in *Balneo*: cast away the insipid water, which comes from it; and set that which remains in the bottom, to ferment another month, then distil out the insipid water as before; repeating this work so long as any insipid water may be drawn: then evaporate away all the moisture, and what remains is the quintessence of Salt.

Where note, 1. That these Saline quintessences as they may be used, will draw forth the perfect and compleat essence of any vegetable whatsoever. 2. That the essence of Salts thus drawn, will scarcely come to two ounces in a pound.

CHAP. XLVII.

Of Perfuming Unguents.

I. **T**O make Unguentum Pomatum, or Ointment of Apples.

Take Hogs Lard three pound, Sheeps Suit nine ounces, bruised Cloves one drachm, *Aqua Rosarum* two ounces, Pomwaters pared and sliced one pound, boil all to the Consumption of the Rose-water; then strain without pressing, to every pound of which add oil of *Rhodium* and Cinnamon of each thirty drops.

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II. To

II. *To make a compound Pomatum.*

Take of the Pomatum aforesaid, (without the oils) four pound, Spicknard, Cloves of each two ounces, Cinnamon, Storax, Benjamin of each one ounce (the Spices and Gums bruised and tyed up in a thin rag) Rose-water eight ounces; boil to the Consumption of the Rose-water, then add white wax eight ounces, which mix well by melting, strain it again being hot; and when it is almost cold, mix therewith oil of Musk (made by the first Section of the five and fortieth Chapter) then put it out, and keep it for use.

III. *Another excellent Ointment.*

Take hogs griesfe one pound, *Saccharum Saturni* two ounces, mix them well by gently melting them; to which add oils of Musk and Ambergriesfe of each half an ounce, let them all cool, and beat the Unguent well in a mortar, and keep it for use.

IV. *To make Unguentum Moschatum.*

Take hogs griesfe one pound, Ambergriesfe, Mosch of each one drachm and a half, (ground with oil of Jasmine upon a marble) *adepts Rosarum* half an ounce (ground with Civet one drachm) mix all together into an ointment which keep for use.

CHAP. XLVIII.

*Of Perfuming Powders.*I. **T**O *made Powder of Ox dung.*

Take red Ox dung in the month of *May* and dry it well, make it into an impalpable Powder by grinding; it is an excellent Perfume without any other addition; yet if you add to one pound of the former,
Musk,

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Musk, and Ambergriefe of each one drachm, it will be beyond comparifon.

II. To make Cyprian Powder.

Gather Musk mofs of the Oak in *December, January* or *February*, wash it very clean in Rose-water, then dry it, steep it in Rose-water for two days, then dry it again, which do oftentimes; then bring it into fine Powder and fierce it; of which take one pound, Musk one ounce, Ambergriefe half an ounce, Civet two drachms, yellow Sanders in powder two ounces, mix all well together in a marble mortar.

III. Another way to make the same.

Take of the aforefaid powder of Oak-mofs one pound, Benjamin, Storax of each two ounces in fine Powder; Musk, Ambergriefe and Civet of each three drachms, mix them well in a mortar.

IV. A Sweet Powder to lay among cloaths.

Take Damask-rose leaves dried one pound, Musk half a drachm, Violet leaves three ounces, mix them and put them in a bag.

V. Another for the same or to wear about one.

Take Rose leaves dried one pound, Cloves in powder half an ounce, Spicknard two drachms, Storax, Cinnamon of each three drachms, Musk half a drachm, mix them and put them into bags for use.

VI. Powder of sweet Orrice, the first way.

Take Florentine Orrice root in powder one pound, Benjamin, Cloves of each four ounces in powder, mix them.

VII. Powder of Florentine Orrice, the Second Way.

Take of Orrice root six ounces, Rose leaves in powder four ounces, Marjoram, Cloves, Storax in powder of each one ounce, Benjamin, yellow Sanders of each half an ounce, Violets four ounces, Musk one drachm, Cyperus

Cyperus half a drachm, mix them : being grossly powdered, put them into bags to lay amongst linnen : but being fine, they will serve for other uses, as we shall shew.

VIII. Powder of Orrice roots, the third way, excellent for linnen in bags.

Take roots of Iris one pound, sweet Marjoram twelve ounces, flowers of Rosemary and Roman Camomil, leaves of Time, *Geranium Moschatum*, Savory of each four ounces, Cyperus roots, Benjamin, yellow Sanders, *Lignum Rhodium*, Citron peel, *Storax*, *Labdanum*, Cloves, Cinnamon of each one ounce, Musk two drachms, Civet one drachm and a half, Ambergrieze one drachm, powder and mix them for bags. This composition will retain its strength near twenty years.

IX. Powder of Orrice, the fourth Way.

Take Orrice roots in powder one pound, *Calamus Aromaticus*, Cloves, dried Rose leaves, Coriander seed, *Geranium Moschatum* of each three ounces, *Lignum Aloes*, Marjoram, Orange peels of each one ounce, *Storax* one ounce and a half, *Labdanum* half an ounce, Lavender, Spicknard of each four ounces, powder all and mix them, to which add Musk, Ambergrieze of each two scruples.

X. *Pulvis Calami Aromatici compositus.*

Take *Calamus Aromaticus*, yellow Sanders of each one ounce, Marjoram, *Geranium Moschatum* of each one ounce, Rose leaves, Violets, of each two drachms, Nutmegs, Cloves of each one drachm, Musk half a drachm, make all into powder, which put in bags for Linnen.

XI. Another of the same.

Take *Calamus Aromaticus*, Florentine Iris roots of each two ounces, Violet flowers dryed one ounce, round Cyperus roots two drachms, *adeps Rosarum* one drachm

drachm and a half, reduce all into a very fine powder : it is excellent to lay among Linnen, or to strew in the hair.

XII. *An excellent perfuming Powder for the hair.*

Take Iris roots in fine powder one ounce and a half, Benjamin, Storax, Cloves, Musk of each two drachms : being all in fine powder, mix them for a Perfume for hair Powder. Take of this Perfume one drachm, Rice-flower impalpable one pound, mix them for a powder for the hair. Note, some use white starch, flower of French Beans and the like.

CHAP. XLIX.

Of Perfuming Balsams.

I. **N**atural Balsam perfumed.

Take *Balsamum verum* one ounce, Musk, Ambergrise, Civet of each two scruples, mix them, for a Perfume : it is the most fragrant and durable of all Perfumes.

II. *An odoriferous compound Balsam.*

Take of the aforesaid Balsam perfumed one ounce, oils of *Rhodum* and Cinnamon of each two drachms, mix them : this is an incomparable Perfume, and better than the other for such as are not affected so much with musk.

III. *Balsamum Moschatum.*

Take oil of Musk one drachm, oil of Cinnamon half a scruple, Virgin wax one drachm and a half, melt the wax, and mix them according to Art.

IV. *Another very good.*

Take Cloves, Cinnamon, Lavender, Nutmegs of each

each two drachms, oils of Cloves and *Rhodium* of each half a drachm, Wax three drachms, Musk and Ambergrise of each ten grains, mix them into a Balsam.

V. *Another very excellent for those that love not the scent of Musk and the like.*

Take oil of *Geranium Moschatum* (made as *adeps Rosarium* by the fourth Section of the five and fortieth Chapter) *adeps Rosarium*, oil of Cinnamon of each one drachm, Virgin wax six drachms, melt the wax, and mix the oils for a Perfume.

CHAP. L.

Of Perfuming Tablets.

I. **T**O make red Muskardines or Tablets.

Dissolve Gum *Tragacanth* in Rose-water, so that it may be as thick as Gelly: which make into paste with the following composition. Take *Amylum* one pound, fine Sugar half a pound, *Cochenele* two ounces, Musk three drachms, all being in fine powder, mix them, and make Tablets with the aforesaid Mucilage of *Tragacanth*, square, long, round, or of what form you please, which dry in an Oven, out of which bread hath been lately drawn: but be sure you dry them till they be as hard as horns.

II. *Another sort of red Tablets.*

Take of the aforesaid composition one pound, Cloves, Cinnamon, Nutmegs, Ginger of each two ounces, *Cochenele* one ounce, all being in fine powder, make into Tablets, with the aforesaid Mucilage, and dry as aforesaid.

III. To

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III. To make yellow Tablets.

Take *Amylum* one pound, fine Sugar half a pound, yellow Sanders four ounces, Saffron two ounces, (or you may dip the *Amylum* in strong tincture of Saffron, and then dry it again) Musk four drachms, all being in fine powder, make the mass into Tablets with the aforesaid Mucilage, adding oil of Cinnamon in drops two drachms, dry them carefully in the shade.

IV. Another sort of yellow Tablets.

Take *Amylum* dyed with tincture of Saffron one pound, Sugar half a pound, Saffron two ounces, Nutmegs, Cinnamon, Ginger of each one ounce, Carraways half an ounce, Musk three drachms, Ambergriese one drachm, all in fine powder make into Tablets, as aforesaid, adding oil of Cinnamon two drachms; which dry in the shade, till they be as hard as Horn.

V. To make Muscardines or Tablets of any other colour.

You must make them after the same manner, only adding the colour you do intend; and in this case we think that it is better that the *Amylum* be dipt in the tincture, and dried first before you use it. Where note, that these Tablets when used are to be held in the mouth, in which they will dissolve, thereby cheering the heart, reviving the senses, comforting the spirits, strengthening nature, restoring the body, and indeed nobly perfuming the breath. For them that do not love Musk, you may make them without, using instead thereof so much the more oil of Roses or Cinnamon.

CHAP. LI.

Of making Pomanders for Bracelets.

I. **T**he first sort. Take Orrice powder, Cloves, Mace, Cinnamon, of each half an ounce, yellow Sanders, Styrax, sweet *Assa* of each two drachms, Ambergriese, Musk of each one drachm, Balsam of *Pern*, oil of *Rhodium* of each one scruple, Civet two drachms, all being in fine powder (except the Balsam and Oil) mix together, and make into paste with mucilage aforesaid, of which form Beads, drying them in the shade for use.

II. *The second sort.* Take *Storax Labdanum* one drachm and a half, Benjamin one drachm, Cloves, Mace, Spicknard, *Geranium Moschatum* of each ten grains, Musk, Ambergriese of each six grains; with mucilage make a Pomander for Bracelets.

III. *The third sort.* Take Damask-Rose leaves exungulated two ounces, beat them impalpable: Musk, Ambergriese of each two scruples, Civet one scruple, *Labdanum* one drachm with mucilage of gum Tragacanth, in Rose-water aforesaid, make a Pomander for Bracelets.

IV. *The fourth sort.* Take *Storax*, Benjamin of each an ounce and half, Musk two drachms, oil of Cinnamon one drachm, with Mucilage aforesaid make a paste of Pomander, very excellent.

CHAP. LII.

Of Perfuming wash-balls.

I. **T**O make Barbers Wash-balls.

Take purified Venetian Soap six ounces, Macaleb four ounces, Ireos, Amylum of each seven ounces, Cloves two ounces, Labdanum, Anniseeds of each one ounce, Nutmegs, Marjoram, Cypress-powder, Geranium, Moschatum, Camphire of each half an ounce, Storax liquida half a drachm, Musk ten grains, all being in fine powder, with a little fine Sugar, beat all in a mortar, and make them up into Wash-balls.

II. To do the same another way.

Take of the said Soap two pound, juice of Macaleb two ounces, Cloves, Orrice of each three ounces, Labdanum two ounces, Storax one ounce, all being in fine powder, mix with the Soap, of which make balls, drying them in the shadow.

III. To make Balls of white Soap.

Take of white Soap five pound, Iris four ounces, Amylum, white Sanders of each three ounces, Storax one ounce, all in powder, steep in Musk-water, of which make paste for Wash-balls.

IV. Another sort very good.

Take of white Soap four pound, Orrice six ounces, Macaleb three ounces, Cloves two ounces, all in powder mix with the Soap, with a little oil of Spike, Rhodium or the like, of which make Balls.

V. Another way to make them of Goats fat.

Make a strong Lixivium of Pot-ashes, as that a new laid egg will swim thereupon, which boil with Citron peels: take of this Lye twenty pound, Goats fat two pound,

pound, boil it for an hour, then strain it through a linen cloth into broad platters of fair water, exposing it to the Sun, mix it often every day till it begins to grow hard, of which you may form balls, which you may perfume with Musk half a drachm, Civet one scruple, oil of Cinnamon ten grains.

CHAP. LIII.

Of perfuming Soaps.

I. **T**O *purifie Venetian Soap.*

Cut it small, to which put some Rose-water, or other perfuming water, boil them a while, then strain it and it will be sweet and good, then take off the Soap which swims a top with a spoon, and lay it upon a tyle, and it will presently be dry, being white, free from filth and unctuosity.

II. *Another way to do the same.*

Grate the Soap, and dry it in the Sun, or an Oven, powder and sieve it, then moisten it with some sweet water or oil of Spike, which dry again (in the shadow) and keep it for use.

III. *To make white musked Soap.*

Take white Soap purified as aforesaid three pound, Milk of *Macaleb* one ounce, Musk, Civet of each ten grains, mix them and make all into thick cakes or rouls.

IV. *Another kind of sweet Soap.*

Take of the oldest Venice Soap, which scrape and dry three days in the Sun (purifying it as aforesaid) two pound, *Ireos*, *Amylum* of each six ounces, *Storax liquida* two ounces, mix them well whilst hot; which put into pans to form Cakes.

V. To

F. To make soft Soap of Naples.

Take of *Lixivium* of Pot-alhes (so strong as to bear an egg) sixteen pound, Deers Suet two pound, set them upon the fire to simmer; put all into a glased vessel with a large bottom, set it in the Sun for a while, stirring it five or six times a day with a stick, till it wax hard like paste. Then take of this paste, to which put Musk'd Rose-water; keep it eight days in the Sun, stirring it as aforesaid, so long as it may be neither too hard nor too soft; then put it up in boxes or pcts.

VI. To make the same Soap, musked.

Put to the said Soap, Rose-water two pound, fine musk in powder half a drachm, then mix the said water as before.

VII. Another exquisite Soap.

Take of the aforesaid *Lixivium* or oil of Tartar per deliquium twelve pound, oil Olive three pound, mix them, *Amylum* two pound, Roman Vitriol one ounce in powder, Glair of eggs two ounces, put all together, and stir continually for four hours time, then let it stand the space of a day and it is done. You may perfume it as before; this makes the hair fair.

VIII. Another exceeding the former.

Take Crown-soap, Vine-alhes of each one pound, make it into Cakes with powder of Roch Alom and Tartar of each alike, which you may perfume at pleasure.

IX. To get the juice or milk of Macaleb.

Take the sweet and odoriferous grains of *Macaleb*, which beat in a mortar (with Rose-water, or some perfuming-water) till it becomes like pap, then press out the juice or milk; which use within two or three days lest it spoil.

CHAP. XIV.

*Of Burning Perfumes.*I. **T**O make perfumed lights.

Take *Olibanum* two ounces, Camphire one ounce, beat them into powder, of which make, with wax, balls or rowls, which put into a glass lamp with Rose-water and lighted with a candle, will give a fair light, and a very good scent.

II. *Another for a Lamp.*

Take sweet oil Olive one pound, Benjamin, Storax in powder one ounce, Musk, Ambergriese of each one scruple, mix all with the oil, which put into a lamp to burn; and the oil will yield a fragrant odour.

III. *To make perfumed Candles.*

Take *Labdanum*, Myrrh, *Xylo-aloes*, *Syrax calamita* of each one ounce and a half, Willow Charcoal one ounce, Ambergriese, Musk of each ten grains, make them into paste with mucilage of Gum *Tragacanth* in Rose-water, which make into rouls like Candles, and dry for use.

IV. *A perfume to smoak and burn.*

Take *Labdanum* two ounces, Storax one ounce, Benjamin, Cloves, Mace of each half an ounce, Musk, Civet of each ten grains, all in fine powder, make up into cakes with mucilage of gum *Tragacanth* in Rose-water, which dry; and keep among your cloaths, which when occasion requires, you may burn in a chafing-dish of coals.

V. *Another smoaking perfume to burn.*

Take *Labdanum* two drachms, Storax one drachm, Benjamin, Frankincense, white Amber, *Xylo-aloes* of each

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each two scruples, Ambergriese, Musk of each five grains, make all into Cakes as aforesaid.

VI. *Another very excellent.*

Take Storax, Benjamin of each one ounce, wood of Aloes half an ounce, Ambergriese, Musk, Civet, Balsam of Peru, oil of Rhodium, of each two scruples, Ivory burnt black a sufficient quantity, powder what is to be powdered, and mix all together; which make into a paste, with the Ivory black and the mucilage aforesaid; make little cakes and dry them, which keep in glasses close stoppt for use.

VII. *Another very good, but of less cost.*

Take Olibanum one pound, *Syrax Calamita* and *Liquida* of each eight ounces, *Labdanum* six ounces, Willow charcoal a sufficient quantity, with mucilage of Tragacanth, make a paste as aforesaid.

CHAP. LV.

Of Animal and Mineral Perfumes.

I. **T**He Animal Perfume of Paracelsus.

Take Cow-dung in the month of *May* or *June*, and distil it in *Balneo*; and the water thereof will be an excellent perfume, and have the scent of Ambergriese. See our *Synopsis Medicina lib. 3. cap. 75. sect. 5.*

II. *Lard muskified, a great perfume.*

Tak hogs lard very pure one drachm, Musk, Civet, of each half a drachm, mix them well for boxes.

III. *The Mineral Perfume of Antimony.*

Dissolve Antimony in oil of Flints, Crystal or Sand, coagulate the solution into a red mass, put thereon Spirit of Urine, and digest till the Spirit is tinged;

A a 2

pour

pour it off, and put on more, till all the tincture is extracted; put all the tinctures together, and evaporate the Spirit of Urine in *Balneo*; and there will remain a blood-red liquor at bottom; upon which put Spirit of Wine, and you shall extract a very pure tincture smelling like Garlick: digest it a month, and it will smell like Balm; digest it a while longer, and it will smell like Musk or *Ambergriese*.

Besides being a perfume, it is an excellent *fudorifick*, and cures the Plague, Fevers, *Lues Venerea*, &c.

IV. After the same manner you may make as substantial a perfume of Sulphur or Brimstone. The making of the oil of Flints, we have taught at the seven and fiftieth Section of the nine and twentieth Chapter of the third Book.

CHAP. LVI.

Of the Adulteration of Musk, Civet and Ambergriese.

BY reason that these choice Perfumes are often adulterated or counterfeited, we shall do our endeavour to discover the cheat, lest any being deceived thereby should suffer loss.

I. Musk is often adulterated by mixing Nutmegs, Mace, Cinnamon, Cloves, Spicknard of each alike in a fine or impalpable powder with warm blood of Pigeons, and then dried in the Sun, then beaten again, and moistned with Musk-water, drying and repeating the same work eight or ten times; adding at last a quarter part of pure Musk by moistning and mixing with Musk-water; then dividing the mass into several

Chap. 57. Of Perfuming Cloth, &c. 365

several parts, and rousing them in the hair of a Goat, which grows under his tail.

II. *Other's adulterate it thus:* By filling the Musk-cods with Goats blood, and a little toasted bread, mixed with a quarter part of Musk, well beaten together. The cheat is discerned by the brightness of the Goats blood.

III. *Or thus,* Take Storax, *Labdanum*, powder of Xyl-aloes, of each four ounces, Musk and Civet of each half an ounce, mix all together with Rose-water. The cheat is discerned, by its easy dissolving in water, and its different colour and scent.

IV. *Or thus,* Take Goats blood, powder of Angelica roots, Musk, of each alike, make a mixture.

V. *To adulterate Civet:* Mix with it the Gall of an Ox, and Storax liquefied and washed: or you may adulterate it by the addition of Honey of Crete.

VI. *To restore the lost scent to Musk, or Ambergriese.*

This is done, by hanging it some time in a Jakes or house of Office; for by these ill scents its innate vertue and odour is excited and revived.

CHAP. LVII.

*Of the way of Perfuming Cloth, Skins, Gloves
and the like.*

I. **T**O *Perfume Skins or Gloves.*

Put a little Civet thereon here and there, (if Gloves, along the seams) then wash in Rose or musked water four or five times, or so long as that they savour no more of the leather, pressing them hard every time; then lay them in a platter, covered with the said water,

mixed with powder of Cypress, a day or two; take them out, press them, and dry them in the shadow: be in half dry, besmear them a little with Civet mix'd with oil of Jasemin or Ben, on the inward side chafing them with your hands before a fire, till you think that the Civet hath pierced or gone through the leather; leaving them so a day or more; then rub with a Cloth that the Gloves or Leather may grow soft; leaving them so till they are almost dry, being drawn and stretched out; then hold them over some burning Perfume to dry, and wetting them again with Musk-water, do thus twenty times; lastly, take Musk and Ambergriese a sufficient quantity, which mix with oil of Jasemin, Benjamin or Ben, dissolve at the fire with a little perfumed water, with which (with a pencil) strike the Gloves or Leather over on the outside, besmearing the seams with Civet; lastly lay them for six or eight days between two mattresses, so will the Skins or Gloves be excellently perfumed.

II. Another way very excellent.

Take three pints of Wine, Sheeps suet or fat one pound, boil them together in a vessel close covered, this done, wash the Griese six or seven times well with fair water, then boil it again in White-wine and Rose-water of each one pound and a half, with a small fire, till the half be consumed: then take the said griese, to which put pulp of sweet Navews roasted half a pound, boil all in Rose-water half an hour, then strain it, and beat it in a mortar, with a little oil of Jasemin and Musk, with which besmear your Gloves (after due washing as aforesaid) rubbing it well in by the fire.

III. Another way for Gloves.

Wash new Corduban Gloves, wash them well three or four days (once a day) in good White-wine, pressing and smoothing them well; lastly, wash them in musked

musked water, letting them lye therein for a day, then dry them with care. This done, steep *Musk*, *Amber*, *Basil* of each one drachm in a quart of sweet water, in which dissolve gum *Tragacanth* three drachms, boil all gently together, and in the boiling add *Zibet* one scruple, with which besmear the Gloves, rubbing and chafing it in, then drying them according to Art.

IV. *Or thus*, First wash the Gloves or Skins in white-wine, then dry them in the shade; then wash them in sweet water, mixed with oil of Cloves, and *Labdanum* of each alike: lastly, take Musk, Civet, Ambergriese of each the quantity of six grains, oil of Musk half a drachm, mucilage of gum *Tragacanth* fifteen grains, mix them well together in a mortar, which chafe into the wash'd Gloves before the fire.

V. *Cloths, Linnen or Woollen, Coffers, Trunks* and the like, are best perfumed (with little cost) with the smoak of burning Perfumes.

CHAP. LVIII.*Of making various sorts of Ink.*

I. **T**O make good black writing Ink,

Take ponderous galls three ounces in powder, White-wine, or in place thereof rain-water, which is better, three pound, infuse them in the Sun or in a gentle heat two days: then take Roman Vitriol well coloured and powdered, which put therein, and set all in the Sun for two days more; shake together, to which add of good gum Arabick in little bits one ounce with a little white Sugar, which dissolve over a gentle fire.

II. *To make red writing Ink.*

Take Rasplings of Brazil one ounce, white lead, Alom, of each two drachms, grind and mingle them, infuse them in Urine one pound, with gum Arabick eight scruples.

III. *Another way to make red Ink.*

Take Wine-vinegar two pound, Rasplings of Brazil two ounces, Alom half an ounce, infuse all ten days; then gently boil, to which add gum Arabick five drachms, dissolve the Gum, strain, and keep it for use.

IV. *To make green Ink to write with.*

Make fine Verdigrise into paste with strong Vinegar, and infusion of green galls, in which a little gum Arabick hath been dissolved, let it dry, and when you would write with it, temper it with infusion of green Galls aforesaid.

V. *Another way to make green Ink to write with.*

Dissolve Verdigrise in Vinegar, then strain it, and grind it with a little honey and mucilage of gum Tragacanth, upon a porphyry stone.

VI. *To make blew Ink to write with.*

Grind Indico with honey mixed with glair of eggs of glew-water, made of Isinglass dissolved in water, and strained.

VII. *To make red writing Ink of Vermilion.*

Grind Vermilion well upon a porphyry stone, with common water; dry it and put it into a glass vessel, to which put Urine, shake all together, let it settle, then pour off the Urine; and putting on more Urine, repeat this work eight or ten times, so will the Vermilion be well cleansed; to which put glair of Eggs to swim on it above a fingers breadth, stir them together, and setting abstract the glair: then put on more glair of eggs, repeating the same work eight or ten times also,

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to take away the scent of the Urme: lastly, mix it with fresh glair, and keep it in a glass-vessel close stop'd for use. When you use it, mix it with water or vinegar.

VIII. To make Printers black.

This is made by mingling Lamp-black with liquid varnish, and boiling it a little, which you may make thick at pleasure. You must make it moister in winter, than in Summer; and note that the thicker Ink makes the fairer letter.

If it be too thick, you must put in more Linseed oil, or oil of Walnuts, so may you make it thicker or thinner at pleasure.

IX. To make red Printing Ink.

Grind Vermilion very well with the aforesaid liquid Varnish or Linseed oil.

X. To make green Printing Ink.

Grind Spanish green with the said Varnish or Linseed oil as aforesaid: And after the same manner, may you make Printers blew, by grinding Azure with the said Linseed oil.

CHAP. LIX.

Of making Sealing Wax.

I. TO make red Sealing Wax.

Take white Bees-wax one pound, Turpentine three ounces, Vermilion in powder well ground, oil Olive, of each one ounce, melt the wax and Turpentine; let it cool a little, then add the rest, beating them well together.

II. To do the same otherwise.

This is done by taking away the Vermilion, and adding

ding instead thereof red Lead three ounces, to the former things,

III. *To make green Wax.*

Take Wax one pound, Turpentine three ounces, Verdigrise ground, Oil Olive of each one ounce, compleat the work by the first Section.

IV. *To make black Wax.*

Take Bees-Wax one pound, Turpentine three ounces, black earth, Oil Olive of each one ounce, mix and make Wax as aforesaid.

V. *To make Wax perfumed.*

This is done by mixing with the Oil Olive aforesaid, Musk, Ambergrise, or any other eminent Perfume, as oil of Cinnamon, *adepts Rosarum*, or the like one drachm, more or less, according as you intend to have its scent extended.

VI. After the same manner you may make Sealing wax of all colours, having what scent you please; by mixing the scent intended, with the Oil Olive, and putting the colour in, in place of the Vermilion.

CHAP. LX.

Of the various wayes of making Artificial Pearls.

I. **T***He first Way.* Dissolve mother of Pearl in spirit of Vinegar, then precipitate it with oil of Sulphur *per Campanam* (not with *Oleum Tartari*, for that takes away the splendor) which adds a lustre to it; dry the precipitate, and mix it with whites of eggs; of which mass you may make Pearls, of what largeness you please, which before they be dry, bore through with a silver Wire, so will you have pearls scarcely
to

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to be discerned from those which are truly natural.

II. *The second way.* Take Chalk, put it into the fire, letting it lye till it breaks; grind it impalpable, and mix it with whites of eggs, of which form pearls, boring them as aforesaid; dry them, then wet and cover them with leaf silver.

III. *The third way.* Take prepared Crabs-eyes, ground into impalpable powder, and with glair make Pearls; which bore, as aforesaid; dry them, and boil them in Cows milk; then in the shade (free from dust) dry them well; they will please.

IV. *The fourth way.* Take Potters earth, and make them of what form you please; dry them in the Sun, or in the gentle heat of a furnace; then wet them with glair of eggs, lightly coloured with Bole-armoniack, and cover them with leaves of silver, being first wet with water: when they are dry, polish them with a tooth, and they will be Oriental. Then take bits of Parchment, and wash them in warm water, till the water grows somewhat thick, boil and strain it, and use it warm: then fasten each pearl through its hole upon a fine piece of wire, and plunge them into the water of Parchment, taking them out again; then turn them round, that the glewy liquor may equally cover them; thus the silver whiteness will the better shine through, so that the pearls will seem to be truly natural, and being compared, will rather exceed.

V. *The fifth way.* Calcine Muscle and snail shells in a Crucible, till they are very white, even as snow; with glair make Pearls, which bore by the first Section, dry them in the Sun; dip them in red wine, dry them again, and they will be fair.

VI. *The sixth way.* Take *Sublimate* two ounces, *Tin-glass* one ounce, mix them, and sublime them together, and you will have a sublimate not inferiour to the
the

the best orient Pearls in the world, of which with glair, you may form what you please.

VII. *The seventh way.* Take any of the aforesaid particulars, and mix them (instead of glair) with ground Varnish; (made of gum *Arum*, and the *Alcool* of wine) of which make pearls; these will in all respects be like the natural; for these will no more dissolve in water, than the truly natural; which all those that are made of glair of eggs are unavoidably subject to.

VIII. *The eighth way.* After dissolution, precipitation, edulcoration, fixation and formation, put the pearls into a loaf of bread, and bake it in the Oven with other bread, so long till the loaf is much burnt, then take them out, and wash them, first in good juice of Limons, then in clear Spring water; and they will be as fair as the truly natural. Or after baking, give them to Pigeons to eat, keeping them close up, and in the dung you will find the pearl exceeding fair: where note, you must give the Pigeons nothing to eat in three days time.

IX. *The ninth way.* After dissolution of small oriental pearls in juice of Limons, make the form thereof with clarified honey, moistning your hand with *Aqua Mellis*; this done, perfect them as before.

X. *The tenth way.* Take filtrated juice of Limons, powder of pearl, of each six ounces, *Talk* one ounce, put them into a glass, and stop it close, set it fifteen days in horse-dung, and it will be a white paste; of which form pearl, bore them, and dry them in the Sun; at last in paste of barley meal (*viz.* a barley loaf) four fingers thick, stick the pearl, so that they may not touch, stop the holes, and cover them with paste; set it into an Oven, and bake it with bread, and you will find them hard and clear.

XI. *The*

Chap. 60. Of making Artificial Pearls. 374

XI. The eleventh way. Having formed them of the matter intended, bored and dried them, put them into Quicksilver, set over a glowing heat, stirring them well about, that the Quicksilver may stick to them; then dip them into glair of eggs, upon a glowing heat, and they are done; or being dry, boil them in Linseed oil, and wash them in warm water.

XII. The twelfth way. Take pearl three ounces, prepared Salt one ounce, filtrated juice of Limons, so much as will cover them four fingers breadth: let it stand so long till it be a paste; the glass being very close stopped, shake all together five or six times a day; and when it comes to paste, put it into a glass with strong spirit of Vinogar, lute another glass over it; digest it three weeks in a cool place under the earth, so long till all be dissolved, then mix it with a little oil of eggs, or snail-water, till it be like pearl in colour; then put this paste into silver moulds and close them up for eight days; after which take them out, and bore them by the first Section, and put them again into the mould for eight days; this done, boil them in a silver porringer with milk; lastly, dry them upon a plate, in a warm place, where neither wind nor dust may come, and they will be much fairer than any oriental pearl.

XIII. The thirteenth way. After the preparation of the matter in juice of Limons, or *Aqua fortis*, with clean hands make them into paste, and wash them in distilled water, which put into edulcorate calx of silver, and digest in Horse dung for a month, so will they be fair and very oriental.

XIV. The fourteenth way. Dissolve the matter in *Aqua fortis* (which let over-top it a fingers breadth) in a glass gourd, till all be incorporated into one body, which put into silver moulds, which have holes through them, and having stood one day, bore them through

through the holes, as they lye in the mould with a silver needle: being quite dry, take them out, put them into a glass close covered in the Sun, till they be quite dry; then put them upon a silver wire; and let them lye covered in their own fat, (that is, that fatty substance, which swims on the top of the menstruum in their dissolution) so long till they are very fair, then being strung, put them into a glass egg, and let them stand nine days in digestion, and they will be as fair as the natural.

XV. *The fifteenth way.* Take Tobaccopipe clay, of which form little beads (by *Señt.* 14.) dry them in the Sun, and burn them in a Potters furnace, then cover them with Bole-Armoniack, tempered with whites of eggs; being dry, dip them in water, lay on leaf silver, which dry again, and polish them with a tooth: then take clean shavings of parchment, cut small, and washed well with warm water; boil them in a new pot, with a slow fire, till they become somewhat thick, strain it, and being warm, put in the pearl upon a needle or fine wire, that the hole may not be stopped, take them out, turn them round, that the water or glew may not settle in one place, dipping them so often (drying them every time) till they be thick enough, and they will appear full as fair as the truly natural.

XVI. *The sixteenth way.* Take the impalpable and snow-white calx of Talk, and with our best Varnish make a paste; of which form peals, and bore them with a silver wire, on which let them dry: this done, make a mixture of the Alchool of the incomparably pure red diaphoretick Mercury, calx of talk aforesaid, shell gold and silver (in *Lib. 2. Chap. 21. Señt. 1.*) in a just and due proportion (as by many tryals you may find out) in which roul your pearls till they be all

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all over perfectly covered, then vernish them with our
afore said vernish, which let dry according to Art, and
if need be, polish with the impalpable powder of Putty
and water.

CHAP. LXI.

A brief discourse of Alchimy, and first of Metals in General.

I. **T**He Mineral Kingdom is divided into *Metals*,
Semi-metals, *Salts* and *Stones*.

II. Metals are in number seven, viz. *Saturn*, *Jupiter*, *Mars*, *Sol*, *Venus*, *Mercury* and *Luna*, called by the
Vulgar, *Lead*, *Tin*, *Iron*, *Gold*, *Copper*, *Quicksilver*
and *Silver*.

III. The Semi-metals are *Antimony*, *Tin-glass*, *Cinna-
ber* and *Zink*.

IV. The Salts are chiefly *Vitriol*, *Sulphur*, *Arfnick*,
Allom, *Nitre*, *Borax* and *Salt*.

V. The chief Stones are *Lapis Calaminarius*, *Tutia*,
Lazuli, and *Lime stone*.

VI. Now out of these the *Alchymist* designs three
things, to wit, 1. Either the *Counterfeiting* of the fine
Metals. 2. Or the *separation* of fine Metals out of the
base: or, 3. The *Generation* of the fine Metals out of
the base, by *transmutation*.

VII. The *counterfeiting* of the fine Metals, is done by
giving the colour, and body, of a fine Metal to that
which is base: as the tinging of *Lead* into a *Gold* Co-
lour; the whitening of *Copper*; the reduction of *Mer-
cury* or *Quicksilver*.

VIII. The *Separation* of fine Metals out of base, is
done

done by attracting of the particles or Atoms of the fine (contained in that baser) into one heap or mass, that they might not be carried away by the wings of the Volatile or baser Metal.

Thus it appears, there is a large quantity of Gold, in Lead, Tin, Copper and Silver: and much Silver in Tin, Copper, and Iron: the proof of this is manifest by the parting say (as they call it) to wit the test by strong waters; by which you may find that one pound of Lead will yield near three or four penny weight of silver, and one of Gold: One pound of Tin will yield something above an ounce of Silver; and about two penny weight of Gold or more; One pound of Silver will yield about one ounce of Gold; and Copper about a quarter of the same quantity or more, &c. but this is according to the goodness of the Metals, and the skill of the undertaker; for by this way of Separation, what is gotten will never pay the cost; it remains therefore, that we search out some way more profitable, the which in the following lines, to the true sons of Art, we shall faithfully present according to the best of our knowledge: But we are bound to be a little the more obscure, for the sakes of some ingrateful men by whom we know our just meaning will be traduced; our skill in Art abused; and our person sought to be rent and destroyed, should we but adventure to be so open, as to give them the clear knowledge thereof. Let others search as we have done, it is some satisfaction, that the master here sought, is really in rerum natura; the which joined to the certainty of anothers attaining thereof, may give life to future hopes, which as the precursor of better things may point at the great work in self.

IX. The matter of transmutation is done by that great powder, tincture, Elixir, or stone of the Philosophers, which according to the opinion of Paracelsus, and others the most learned, we shall signify in few words.

By

By this *tincture* or *Elixir* according to the judgement of Philosophers the whole body of any Metal (being separated from its impurity) is changed into fine Gold.

CHAP. LXII.

Of Saturn, or Lead.

I. **S**aturn is a cold, gross, dull and heavy body, replete with much impurity, yet full of a golden seed.

II. It is tinged into a pure golden colour by calcination thereof with Antimony, and imbibing the calx thereof with the spirit of *Venus*, *lapis calaminaris*, *tutia*, and *Zink*, severally prepared, and mixt *ana.* and then reduced, adjoining to every ounce of Lead in calx a penny weight of the golden sulphur of *Venus*.

III. Its *Lunar* property is extracted, by a simple calcination with *Arsnick* and *Nitre ana.* and imbibition of the said calx for about seven days in the Oil of Salt.

IV. Or thus, Take of our Seed or Salt of *Luna* one ounce, of the Salt of *Venus* one ounce and a half; of the crude body of *Saturn* one ounce, mix, and melt them; then separate, and you shall have the *Saturnian Luna*, with considerable advantage.

CHAP. LXIII.

Of Jupiter or Tin.

I. **J**upiter is much a more noble body than *Saturn*, and (as we said before) abounds much more with a *Solar* and *Lunar* seed.

II. It is reduced into the *Imitation* of silver by often melting of it, and quenching of it in the spirit of *Arsnick*; or by calcination of it with *Lime* (three ounces to a pound of *Jupiter* granulated) and then by often extinguishing of the same in the spirit of *Arsnick* aforesaid.

III. The *Luna* is extracted out of it thus: Let *Jupiter* be married to our *Luna* of the same stature by the Priest *Mercury*, after which let them drink their fill of the *Mineral spirit* of the Grape; then put them to bed in *Taurus* the exaltation of *Luna* and house of *Venus*, and the next morning let them drink very well of the fruitful Wine of the daughter of *Luna*; this being done, you will find *Luna* like a bride coming forth out of the marriage chamber; but with the wings of an *Eagle*, which wings you must clip by the means of *Mars*, else you will lose her: Thus, take of the Seeds of *Mars*, and the eldest Son of old *Saturn* ana. make them contend with mother *Tellus*, for three whole days and nights, till they conjoyn and beget a Son, white as *Luna*, and fixt as *Sol*. This Sun will by force take *Jupiters* wife from him, and being fruitful cause her to bring forth a plentiful and profitable issue.

IV. Or thus, Kill *Jupiter* (in conjunction with
Luna)

Luna) by the fire of *Tellus*, then revive the dead body (after it is impregnated with the *Mineral spirit* of the Grape) by the help of *Saturn*, and you have a numerous off-spring of *Luna*.

V. Or thus, Marry *Jupiter* to *Luna*; then marry him to her daughter, and join these issues together, and they will sympathetically attract and join all the seed of *Luna* into one family or lump.

VI. Or thus, Which is both the best and easiest way. Take *Jupiter* and melt him, then quench him ten times in the *spirit* of mother *Tellus*; till he is reduced very small and low: this done, join him with the Daughter of *Luna* calcined with mother *Tellus*, and the work is over. This is very profitable, and the most useful of all, but by reason of the unworthiness of this generation, it cannot admit of any explication.

VII. The Gold is thus extracted: marry *Jupiter* to *Venus*, and their off-spring to *Sol* by the means of Priest *Mercury*; put them to bed (in the life of *Phæbus*) for three whole days and nights, afterwards make them drunk with the spirit of the daughter of *Venus*, then make a perfect conjunction with the eldest Son of *Saturn*, and you shall have what you sought.

VIII. Or thus, Calcine *Jupiter* granulated one pound, with *Quick-lime* four ounces, mix all with the *Calx* of *Venus* and *Luna ana.* calcine again for three days, imbibe in the spirit of *Venus* (that is, the fixed oil) for seven days, then reduce to a *regulus* with *Saturn*, and afterwards separate with *Antimony*.

CHAP. LXIV.

Of Mars, or Iron.

I. **M***Ars* is yet a more noble body, but harder and more replete with *scoria* or filth, yet very full of a Solar and Lunar sulphur.

II. It is converted into Copper by the *Oil or spirit of Venus*: into brass by the means of *Lapis Calaminaris*, and made to imitate silver by impregnating its *calx* in the burning spirit of *Arsnick*.

III. It has much Silver and Gold in it, but they are extracted with great difficulty; thus, first melt the body with an equal quantity of *Tin*, *Lead and Copper*; this done, *granulate* it and imbibe the body with *Oil of Venus* very strong, then calcine it with the butter of *Arsnick* (if you extract its Silver,) or *Antimony* (if its Gold) imbibe this *calx* over a gentle heat in the strongest oil of Flints or Sand for ten days: then reduce it.

CHAP. LXV.

Of Sol, or Gold.

I. **S***OL* is the purest of all Metals, and the very perfection of the Mineral kingdom, at the which, all our pains, labours and endeavours aim.

II. This *Gold* of it self is dead and without force or power, but being quickned, and enlivened, it has
an

Chap.66. Of Venus, or Copper. 381

an inward *seminating germinating* property ; which being raised and brought forth by its *innate life* (till now lockt up) can dilate it self (*having a sitting womb to receive it*) into an hundred times its own quantity ; and thereby *transmute and change* the Mercurial property (which is indeed immature Gold) of all Metals into its own nature and kind.

III. This *immature Gold* in the bodies of all Metals would have come to perfection of its own accord, had it been ennobled with a sufficient life and heat, to have caused such a natural *fermentation and excretion* of the abounding filth and dross, in which the so small particles and Atoms of the Seminal golden property was latent, or buried.

IV. The quickning of the inward life of this Metal is solely done by the help of the Seed of Metals, to wit *Mercury*, but how or after what manner we shall more plainly shew in Chap. 77.

CHAP. LXVI.

Of Venus, or Copper.

I. **V**enus is the finest of the base Metals, and contains more of a *Golden sulphur* than them all.

II. She is *Whitened*, and made like unto *Silver*, by calcining it with butter of the daughter of *Luna*, and *Salt of Tartar*, and then reduced by *Saturn*, and being often melted and extinguished in the said butter.

III. Or thus, To the afore reduced *Venus*, being melted

melted add (for an ounce of *Venus*) two penny weight of our white fixed *Mercury*.

IV. She is made of a Golden colour by often changing the *calx* (calcined with the Son of *Saturn*) in the spirit of *Antimony*, *Zink*, *Lapis Calaminaris*, and *Lapis tutia* : then reduced by being melted with a sufficient quantity of *Lapis Tutia*, and ten or twelve times melted, and quenched in the aforesaid spirit.

V. Her *Silver* is extracted as that of *Tin* by the third Sect. of Chap. 63. Or thus, Calcine her, with butter of the daughter of *Luna*, to which *calx* adjoin the *calx* of *Luna ana.* and reduce with *Saturn*.

VI. Her *Gold* is extracted thus : Calcine her with the Son of *Saturn* : then calcine *Luna* with the same also : put both these calces together and calcine for three days with the Son of *Saturn* mixt with *Mother Tellus* ; to which add the *Calx* of *Sol* calcined with the same Son of *Saturn*, *ana.* put all together and calcine them for twenty four hours, reduce them with *Antimony*, keep them all in a melted heat for three days, then take it forth, and quench it being melted ten or twelve times in the tinging and fixing spirit of *Lapis Calaminaris*, *Antimony* and *Zink*, *ana.*

This is very profitable, and not difficult to perform ; it may be done also (as before) without calcination.

CHAP. LXVII.

Of Mercury, or Quicksilver.

I. **M**ercury is the Seed of Metals, and pure immature Gold.

II. By this the body of *Sol* is opened thus: make an Amalgama of *Sol* and *Mercury* so long till the *Mercury* will swallow up no more: Separate and you shall find your Gold like Earth newly broken up: this Gold being put into the sweet oil of Salt becomes more perfectly dissolved, which being distilled till it comes over the helm will answer your intention: but there is a more noble and excellent way of opening of the body of Gold which here we may not declare, yet in its due and convenient place shall be manifest, and that is only by the help of a perfect sweet, or rather *insipid menstruum*.

III. To make our white Mercury; this is only done by a simple dissolution in the aforesaid *insipid menstruum*.

By this white Mercury, is Copper made of a durable white, after a thousand meltings.

IV. To make our red Mercury; this is done by a dissolution in the spirit of Mother *Tellus*, and then tinged by the mineral spirit of the Grape: and lastly perfectly fixed by the green spirit of *Venus*. This will perfectly unite with Gold, never more to be separated by all the Art of man.

CHAP. LXVIII.

Of Luna, or Silver.

I. **L**una, is the meanest of the fine Metals, and (as it were) *white Gold*.

II. She is tinged of a *Golden Colour* by our red *Mercury* (calcine *per se* for twenty eight days in a *Pelican* or other convenient vessel, till such time as the said *Mercury* will endure the strongest fire) the yellow colour this *Mercury* gives is fixed.

III. Her *Gold* is exactly extracted by the method delivered in Chap. 66. Sect. 6.

IV. Or thus, Calcine her with the *Son of Saturn*, to which add of our red *Mercury*, ana. put all into *Oil of Salt* for ten or twelve days; heat it red hot, and extinguish in oil of *Flints* or *Sand* ten times; to this calx add of fine *Lapis Tutia* ana. reduce all and separate with *Antimony*.

CHAP. LXIX.

Of the secret Hermetick Mysterie, or great Philosophick Work.

WE cannot be so vain as to pretend to the world that we have attained the knowledge of this great Secret, much less to be the Master thereof, or the instructor of other men; but this we can say, we have conversed with most Authors that ever have wrote thereof, we have with a great deal of diligence and study compared

pared their sayings one with another; and we have by a long and continued exercise and practice in the Mineral work, found out not only the natures of Metals, and in what degrees of purity they stand in one to another; but we have also found out many excellent Secrets, of real Worth and Value, by which, although we cannot profess a knowledge of the great work it self, yet we thereby see not only a possibility, but also a probability thereof in nature (to that man whom it shall so far please God to enlighten) and therefore judge we may in some measure the better undertake to discourse the sayings of those Worthies, who having attained the Myserie thereof, thought good in Cloudy and Mysterious terms to publish the same to the world, that none but the truly worthy Sons of Art might be partakers thereof.

In the following lines then, we shall tell you what has been told us, and what we do conceive thereof by the comparing of the sayings of the most excellent men together, such as were Paracelsus, Lullius, Ripley, Bacon, and others; and this in so concise a manner, that the opinions and judgments of all those men (though far asunder in words) may center not only in truth it self, but also in the narrow compass of the following Sections; the which that we might so perform, we express our conceptions of their sense in a language consonant thereto.

I. The seed of Gold is lodged in all Metals.

This is apparent from their generation, whose origination is *Mercury*, which is indeed immature Gold; and so remains immature in the baser Metals till a ripening and meliorating spirit quickens that seminal property lodged in the womb of impurity.

II. This seed of Gold may be quickned or made to live.

This is done through the death of the first matter,

ter, and disposition of the second to a resuscitation or resurrection of that innate, energetical, and seminal life, and that only by the spirit of Mother Tellus.

III. *This semen being quickned, dilates it self into other bodies, and transmutes them into its own property.*

That is just as the seminal life of Vegetables transmutes or changes that succus or humidity of the Earth proper to themselves into their own forms and natures; and so of a little seed there becomes a great tree: so that as the Earth is the womb out of which so small a seed becomes a great tree, by the transmuting property of the innate seminal life in the seed: so all the base Metals are the womb unto that seminal purity: in which womb if the seed be disposed rightly, there will be as certain a generation and encrease; and the purity of the base Metals will be transmuted into that seminal property to a vast augmentation.

IV. *That this may be rightly done, the bodies of the base Metals must be opened and prepared.*

That is, they must be brought into a mortification, that that strong band which has hitherto chained the seminal life may be broken, and so the energetick vertue may be set at liberty: this is performed by the flying dragon who devours all that he comes near: this being done, the semen must be cast into this mortified body (impregnated with the spirit of Mother Tellus) that it may there generate, transmute and fix.

V. *This may be done in any of the base Metals; but they (like the Earth) yield an encrease according to their degree in purity; so that more of the body of a pure Metal is transmuted, than of an impure.*

As

As barren Earth cannot yield so great an encrease as a fertil soil; so neither can a base Metal yield so great an augmentation as a more fine.

VI. *The body of the baser Metals being fitted, the semen must be cast into the same to generate.*

That is, there is to be a conjunction of the *semen* or true *Golden essence* with the prepared body to be transmuted: now you must be careful you use not the simple body of any Metal for this *semen*, for then you will be deceived; the matter in which the generative spirit is lodged is another thing: if you bury a whole tree or plant in the Earth, that will not generate, and bring forth another tree, but perish and rot, the seminal or generative vertue and life is clog'd and loaded, and so is ineffective; but if you bury the seed of the same tree, you may have another or more according to the quantity of seed sown; the same you must understand in the generation of Metals, and of the Golden work; it is not Gold which will generate Gold, but the seed of Gold.

VII. *This semen must be Volatile.*

Otherwise it cannot *transmute*, for nothing but a *Volatile* spirit or essence can dilate and spread it self: a *fixed* matter cannot operate at all, for all *fixed* things are dead, and their life remains in a central state, not fit for *coaction*. This is evident in the *Volatile* Salts of *Vinegar* and *Quick-lime*, which surpass the Art of man to attain simple; but if you mix a *Lixivium* of *Quick-lime* with *Vinegar*, you may have a large quantity of Salt, and that *fixed*, which was before unattainable. Thus you see out of two *Volatile* things, a third absolutely fixed is produced; and this is the condition of this great work.

VIII. *It must be of an unchangeable blood-red colour.*

Otherwise it could not ting; for were it only yellow,

low, it would create only a faintish kind of green : but this our Philosophick tincture, generates Gold of the highest and purest nature, and having the deepest yellow.

IX. *This Semen is made Volatile by the destruction of its external form.*

That is, nature must be brought to action, that the inactive body may let fall its *Semen*, out of which the Golden tree of the Philosophers is produced.

X. *This Semen is made blood-red by impregnating of it with the spirit of Mother Tellus.*

It is necessary that there be a common band to conjoin the bodies, which are to be united : as the bodies of the base Metals which are the womb for this seed are to be mortified : so must that body be, out of which you extract the *Semen* : and as that mortified and prepared body is to be impregnated with the spirit of *Mother Tellus*, so must this *Semen*, that there may be as well a sympathy and likeness in nature, as a unity in body.

XI. *The matter out of which this Semen is to be extracted is Mercury or Gold.*

We mean simply, and without Metaphor, Quicksilver and Gold ; for if there be an innate life, power and vertue, in the base Metals, why not in these ? if Lead, Tin, Iron, Copper and Silver, contain the Seminal life of Gold, why should *Mercury* or Gold be excluded, which are the thing it self?

XII. *The Semen being cast into the body prepared for it, is there to be digested, till both be perfectly united, whose simple conjunction is the product of the Golden kingdom.*

This digestion is perfected only by the force of an external fire, conjoined with the inward Seminal life.

CHAP. LXX.

*A brief discourse of Chiromancy, and first of
the Line of Life.*

I. **K** *Agdaxon* [*Linea Vitalis*] The Line of Life is that which includeth the Mount of the Thumb.

II. This Line broad and of a lively colour well or largely drawn without interfections and points, shews long life and one subject to few diseases: but slender, short and broken or cut with little cross lines, of a pale or black colour, shews short Life with many infirmities.

III. If it makes a good Angle with the *Hepatica*, and the Angle be adorned with parallels or little Crosses, shews a good wit and a pleasant disposition.

I. This *Linea Vitalis* abounding with branches towards the upper end, and those branches extending themselves towards *Linea Hepatica* foreshew riches and honour, but if those branches descend towards the *Restrieta*, they threaten poverty, contempt and deceitful servants.

V. If this line be cut with little lines like hairs, it signifies diseases, which if they fall towards the *Hepatica*, shews in the younger years, in the middle of the line in the middle of the Age, if toward the *Restrieta*, in the latter years.

VI. If this line be any where broken, it threatens great danger of life in that Age which the place of the said breach betokeneth, which you may find out with a great deal of exactness if you divide the line
into

into seventy equal parts, beginning to number them from A towards B.

VII. If the Character of *Sol*, (viz. ☉) be found in this line, it shews the loss of an Eye, if two such figures, the loss of both Eyes.

VIII. A line passing through this *Vital* to the *Triangle* of *Mars* shews wounds and fevors, and many misfortunes in journeying.

IX. A line proceeding from the *Vital* beneath the Angle it makes with the *Hepatica* to the Mount of *Saturn*, shews an envious man, as also some dangerous *Saturnian* disease, as a Consumption, &c. which shall fall in those years signified by that part of the *Vital Line* which the said Line toucheth.

X. But such a line passing from the *Vital* to the ring-finger, shews honour and wealth, and that by means of some noble woman.

CHAP. LXXI.

Of the Epatick, or Natural Line.

I. **T**He *Natural* or *Liver Line* is that which runs from the *Life line* or Mount of *Jupiter* through the middle of the *Palm*, terminating generally upon the Mount of *Luna*.

II. This line straight continued and not cut by other oblique lines, shews a healthy constitution and long life, but short or broken, not reaching beyond the middle of the *Palm*, signifies a short life replete with many diseases.

III. The longer this line is, so much the longer life it

it signifies, if it be cut at the end thereof, it threatens the end of Life with some dangerous disease.

IV. If any breach appears, (yet such an one as seems almost continued) it shews a change of life, if under the middle finger, in strength of years, if under the ring-finger, in declining Age.

V. If the upper part of it be far distant from the *Vital*, it shews manifold diseases of the heart, and also a Prodigal person.

VI. If it be crooked, unequal, of various colours, and cut by other lines, it shews an evil habit of the Liver and diseases thence proceeding, one ill natured and foolish.

VII. If straight drawn and well coloured, shews wit, honour and health.

VIII. If it has a *parallel* or *sister*, it gives inheritances.

IX. If continued with *little hard knots*, it shews Murder according to the number of those knots.

X. If it terminates with a Fork or Angle towards the *Mount of Luna*, it shews a foolish, hypocritical, ill-natured person, if it tends to the *Mensal*, it shews a slanderous and envious person.

XI. When it cuts the *Vital* eminently to the *Mount of Venus* or *Soror Martis*, especially if the same be of a ruddy colour, shews danger of thieves and many ill diseases, threatening life.

CHAP. LXXII.

Of the Cephalica or head-line.

I. **T**He *Cephalica* ariseth below from the *Cardiaca*, and is drawn thence to the *Epatica*, thereby making a *Triangular* Figure.

II. Making such a perfect figure, and it having a lively colour, without interfection, declares one of great *prudence*, and a person of no *Vulgar Wit* or *Fortune*.

III. So much the more perfect the *Triangle*, so much the more *Fortunate*, and it shews a man very wise, temperate and courageous.

IV. If the *Triangle* be obtuse, it shews an evil nature, *clownish and rude*, if there be no *Triangle*, it is still worse, and shews the person to be *foolish, a liar and prodigal*, and generally one of a short life.

V. The *higher Angle* being *Right*, or not very *Acute*, shews a generous man; but if it be *very acute*, or if it touch the *Line of Life* under the mount of the *middle finger*, it declares a miserable, hard and covetous wretch, it also foreshews a *consumption*.

VI. The *left Angle* made upon the *Epatica* in the *ferient* (being a right Angle) shews a profound understanding.

VII. The *Cephalica* casting *unequal* and irregular clefts to *Mons Luna*, thereby constituting strange Characters, shews a *dull head, and danger by the Sea*, in Men: but in Women *discontents, miscarriages* and the like.

VIII. But casting *equal lines*, it presages the contrary in both Sexes: to wit, in men *wisdom, and success*

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cess at Sea, and in Women, contentment, and happy child-bearing.

IX. If the *Cephalica* make a cleft or apparent Star, upward to the *Cavea Martis*, it shews boldness, and magnanimity of mind : but if it let the same fall downward, it manifests deceit and cowardise.

X. The *Cephalica* joyned to the *Restricta*, by a remarkable concourse, shews a happy and joyful old Age.

XI. But if it be drawn upwards, (in form like a Fork) towards the place of *Fortune*, it shews much subtilty and craft in the management of affairs.

XII. If in this *Fork* the Character of \oplus *Sors* be found, it shews *Riches and Honour*, by the mans own industry.

CHAP. LXXIII.

Of the Mensal Line, or Line of Fortune.

I. **T**HE *Mensal* or Line of *Fortune* (called also *Linea thoralis*) takes its original from under the *Mount of Mercury*, and extends it self towards the *Mount of Jupiter*.

II. This line if it be long enough and without incisures, shews strength of body, and constancy of mind ; the contrary if it be short, crooked or cut.

III. If it terminates under the *Mount of Saturn*, it shews a foolish, idle and deceitful person.

IV. If in this line be found certain pricks or points, it shews a lecherous person.

V. If the *Epatica* be wanting; and the *mensal* be annexed

annexed to the *Vital*, it foreshews either *beheading*, *hanging* or other *untimely death*.

VI. If from the *Mensal*, a line ascends to the space between the Mounts of *Jupiter* and *Saturn*, another to the space between the Mounts of *Saturn* and *Sol*; and a third to the space between the Mounts of *Sol* and *Mercury*, it signifies an envious, turbulent and contentious person.

VII. A little line only thus drawn to the space between the *Mons Saturni & Solis*, shews labour and sorrow.

VIII. If annexed to the *Epatica*, making therewith an acute Angle, *the same*.

IX. The *Mensal* projecting small branches to the *Mons Jovis*, shews honour and glory.

X. But if it be *naked* or *single*, it shews *poverty* and *distress*.

XI. If it cuts the Mount of *Jupiter*, it shews a covetous mind, and great pride.

XII. If it send a branch between the *Mons Jovis & Saturni*, it shews *in a Man*, a wound in his head; but *in a Woman*, miscarriage or danger in child-bearing.

XIII. Confused little lines in the *Mensal*, shew sickness and diseases: if under the *Mons Saturni*, in youth: under the *Mons Solis*, in the middle Age: under the *Mons Mercurii*, in old Age.

XIV. Lastly, If there be no *mensal* at all, it shews one *faithless*, *base*, *inconstant* and *malicious*.

CHAP. LXXIV.

Of the *Restricta*, or Cauda Draconis.

I. **T**He *Restricta* is that Line which divides the Hand from the Arm, either by a single, duple, or triple *transcurſion*; thereby determining the *τὸ ὑποκει- μένον* or *Subject of Art*; which by ſome is called the *Discriminal line*.

II. If the *Restricta* be double or treble, and extended in a right and continued tract, it ſhews a *healthful conſtitution of body, and long life*.

III. That line which is neareſt the hand continued without *incifure*, and of a good colour, ſhews riches.

IV. But if it be *pale* or *crooked*, or *cut in the middle*, it ſhews weakneſs of body and poverty.

V. A line drawn from the *Restricta* to *Mons Luna*, ſhews poverty, imprisonment and private enemies.

VI. If that line be *crooked*, it doubles all the evil, and ſhews a perpetual ſlavery or miſery.

VII. But ſuch a line being clear and ſtraight, and extended to the *Mons Luna*, ſhews many journeys and *peregrinations* both by Sea and Land.

VIII. If it extend to the *Mons Jovis*, it foreſhews *eſtimation* and *Eccleſiaſtick dignity*, but that the man ſhall live in a ſtrange countrey.

IX. If to the *Epatica*, it ſhews honeſty, truth and ſincerity, and one of a healthful and long life.

X. If to the *Mons Solis*, a great and certain good, and gives honour and command in the Common-wealth.

XI. And so from the *same reason*, passing to the *Mons Mercurii*, it shews a learned and ingenious soul: but if it reach not that *Mount*, but is *broken about the middle*, it shews a lying, prating, idle person.

XII. If it *ascends directly to the Mons Saturni*, it shews an *inheritance in land*: but if it be *crooked*, it shews a covetous person, and one of a very ill nature.

XIII. A line running from the *Restricta* through the *Mons Veneris*, shews poverty, adversity and want, and that by means of some women or woman-kind.

XIV. A *cross or star* upon the *Restricta*, shews a happy and long life.

XV. One or more Stars upon the *Restricta* by the *Mons Veneris* in *Women*, shews lewdness, dishonour and infamy.

CHAP. LXXV.

Of the Saturnia, or Line of Saturn.

I. **T**His *Line* is that which ascends from the *Restricta* through the middle of the *Vola*, to the *Mons Saturni*, which line if it be cut or parted, is called *Via combusta*.

II. This being full, and extended to the *Mons Saturni*, shews a man of *profound cogitations*, of great wisdom, and an admirable counsellor in all great actions.

III. If it be *combust*, it is an evil sign, foreshewing many

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many misfortunes, and poverty in one part of life.

IV. A line drawn from the *Vital* through the *Epatica* to the *Mons Saturni*, making an angle with the *Linea Saturnia*, foreshews imprisonment, and captivity, and many misfortunes.

V. The *Saturnia* bending backwards in *Cavea Martis* towards the *ferient*, the same.

VI. This line filled with unusual and inauspicious characters, shews unhappiness and disasters.

VII. A gross line running from the interval of the *Mons Jovis* to the *mensal*, and breaking or cutting of it, shews diseases or wounds in the belly or parts adjacent.

CHAP. LXXVI.

Of the Mount of Jupiter.

I. **T**He Mount of Jupiter is the *tuberculum* under the fore-finger.

II. If upon the Mount of Jupiter there be a Star or a double cross it foreshews, riches, prosperity, and happiness, one born to noble and glorious actions, one honest, affable, courteous, and renowned, a generous soul indeed, and faithful in all their undertakings.

III. The same, if this Mount is adorned with a parallel line, or a line sweetly drawn, between it and the *Vital*; it shews great dignities, and estimation with great men.

IV. But if this Mount be vitiated, with a Character like a half *Gridiron*, it shews unhappiness, calamities,

mities, poverty, disgrace and deposition from honours and dignities; lollies by women-kind, and diseases in the heart and lungs.

V. *The same*, If a line cutting this Mount, tends to the *Mount or line of Saturn*; this also threatens an Apoplexy.

VI. *Lastly*, A *Cross*, but especially a *clear red Star* on this *Mount*, is a signal and sure demonstration of a *splendid life*, repleat with honour and glory, riches and an *Eternal name*.

CHAP. LXXVII.

Of the Cavea of Mars, and the Via Martis.

I. **T**He *Cavea Martis* is the hollow in the middle of the *Palm*, commonly called the *Triangle of Mars*, made of the three principal lines, to wit, the *Cardiaca*, *Cephalica*, & *Epatica*.

II. The *Via* or *linea Martis* (called also the *Vital sister* and *soror Martis*) is a parallel to the line of Life on the *Mons Veneris*.

III. *Mars* is *Fortunate* so often as the *soror Martis* appears red, clear and sweetly drawn, and when either *Stars* or *Crosses* are found in his *Cavea* or *Triangle*: and thereby is signified courage, boldness, magnanimity, fortitude and strength: the man is imperious, strong, and a great eater.

IV. But if the *Triangle* be infortunated by evil lines from the *Mons Veneris* or *Luna*, the person is litigious, scornful, proud, disdainful, deceitful and wicked; a thief, lecher, robber, murder, and shall have a life wholly filled with unhappiness.

V. The

Chap. 78. Of the Mount of the Sun, &c. 399

V. The Character h Saturn in the *Triangle*, shews a danger of falling from some high place.

VI. A crooked line ascending from the *Triangle* to the *Mons Saturni*, shews imprisonment.

VII. A line from the said *Triangle* towards the *Restricta*, terminating under the *Mons Luna*, shews many peregrinations, journeys and travels.

VIII. The *ſoror Martis* augments all the good ſignified by the *Cardiaca* or line of life, but particularly it promiſes ſucceſs in war, and the love of Women.

CHAP. LXXVIII.

Of the Mount of the Sun, and Via Solis.

I. **T**He Mount of the Sun is the *tuberculum* under the ring-finger.

II. The *Via Solis*, is a right line running down from the Mount of Sol, to the *Triangle of Mars*.

III. A Star or Stars upon the *Mons Solis*, ſhews one faithful and ingenious, and that he ſhall attain to great honour, glory and dignity, be honoured of Kings, Princes and great men; one of a great and magnanimous ſpirit, wiſe, juſt and religious.

IV. But a perpendicular thereon cut or croſt with a line from the *Mons Saturni*, ſhews pride, and arrogancy, a boaster, a poor baſe ſpirit, and one that ſhall fall into irrecoverable miſeries.

V. The *Via Solis* clear, and not broken, or cut by any ill line, ſhews honour in the Common-wealth, and the favours of Kings and great Princes.

VI. But it being cut or confuſed, or hurt by any

line from either the Mount or line of Saturn, it shews the contrary, poverty and the hatred of great men.

CHAP. LXXIX.

Of the Mount of Venus, and the Cingulum Veneris.

I. **T**HE Mount of Venus is the tuberculum of the Thumb.

II. The *Cingulum Veneris* or girdle of Venus, is a piece or segment of a Circle drawn from the interval or space between the *Mons Jovis & Saturni*, to the interval or space between the *Mons Solis* and *Mercurii*.

III. A clear Star, or furrows that be red and transversely parallel upon the *Mons Veneris*, and it much elevated, shews one merry, cheerful and amorous; it shews also one faithful, just and intire, one with whom an interrupted tie of friendship (being once made) is durable for ever: it also signifies great fortune or estate and substance by a sweet-heart or lover.

IV. But this mount infortunated by evil lines, or lines from evil places, and irregular figures shews a lecherous person, an adulterer, a poor, base, sordid wretch, who shall spend his substance on whores.

V. The Character of the Δ Trine Aspect on this mount, shews a great fortune by marriage.

VI. The Mount of Venus void of lines and incisures, shews a rude, effeminate and foolish person, and one ridiculous, and unfortunate in wedlock.

VII. The *Cingulum Veneris*, or girdle of Venus, shews

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shews intemperance and lust in both Sexes, a base and bestial life; a filthy Sodomite, who abuses himself with beasts.

VIII. If it be broken or dissected, it shews infamy and disgrace by lust and lechery.

CHAP. LXXX.

Of the Mount of Mercury.

I. **T**HE Mount of Mercury is the tuberculum under the little finger.

II. This Mount happy and fortunate with a Star, or parallel crosses, or the Character of the Δ Trine Aspect, shews wit and ingenuity, and makes the person a great Orator, gives him substance by Arts and Sciences, and the understanding of secret mysteries in Alchymy, Musick, Painting, Astrology, and Philology, and raises the person to dignity by means of his own wit, prudence and industry.

III. But this Mount afflicted, or without lines, or hurt by a line from the Mount of Saturn, (cutting the Mount of Sol) or from the Triangle of Mars, shews a poor, low and dull wit, a person of no audacity or courage, a meer coward, a lyer, pratler, thief, cheat, traitor, and one faithless, and sometimes melancholy, mad or frantick.

IV. These judgements are the more firm where the lives and signatures are fair, firm and clear: but if they be dull or obscure, these judgements are more dubious and intricate.

V. A line from the Mons Luna to the Mons Mercurii not cut or broken, shews a man eminent and famous
in

in his trade or profession (among the common people)
let it be what it will.

CHAP. LXXXI.

Of the Mons Luna, and the Via Lactea.

I. **T**He *Mons Luna* (called also *feriens à feriendo*, the smiting part) is the mount comprehended under the *tuberculum* of *Mercury*, between the *mensal* and *Restricta*.

II. The *Via lactea*, or Milky way, is the line running upwards from the *Restricta* through the *feriens* or *Mons Luna*.

III. The *Mons Luna* filled with happy Characters (as we have before hinted) shews one honest, just and honourable, and makes a man famous through a Kingdom, gives him the praise of the common people, and the acquaintance of great and noble Ladies; and makes him happy in Navigation.

IV. But being infortunated by evil Characters, or a *trapezia*, or evil lines from the Triangle of *Mars*, or lines broken, or cut with oblique Angles, it shews one of a various, poor and inconstant life, a beggar, a person envied by almost all people, one wicked, treacherous and deceitful, a person subject to travel, captivity or banishment.

V. If the good lines on the *ferient* be fair and comely, they premonstrate so much the more happiness, and in women fruitfulness: but the evil lines pale, so much the more evil.

VI. The *Via lactea* or milky way, well proportioned

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tioned and continued, shews fortunate journeys, both by Sea and Land, great wit, and the love and favour of Women-kind, chiefly of Ladies and great Women.

VII. But if this line be cut or crooked, it shews unhappiness, and a poor and low estate.

VIII. If it be whole and extended to the little finger, it shews a great good beyond expectation.

CHAP. LXXXII:

Of the Mensa, or Table.

I. **T**HE *Mensa* is the interval or space betwixt the *mensal* and *Epatica*, the which is given or attributed to *Fortune*; from whence the Table is called the place of *Fortune*.

II. The *Mensa* being large and broad, and repleat with good figures, shews riches and treasure, one of a liberal *magnanimous spirit*, and of long life.

III. But small and narrow, shews poverty or a slender and mean fortune, a niggard, a coward, a *pitiful poor, fearful and mean soul*.

IV. A little circle in the *Mensa* shews a great wit, and a profound person in *Arts and Sciences*.

V. The *Mensa* terminating in an *Angle* under *Mons Jovis* by the concurrence of the *Mensal* and *Cardiac* or *Vital line*, shews fallhood and treachery, and one of short life.

VI. A *Cross* or *Star*, within it, clear and of good proportion, especially under the *Mount of Sol*, shews honour and dignity, by means of great and Noble men, and
encrease

encrease of Noble men : if it be the Character of *Jupiter*, it shews *Ecclesiastical preferment*.

VII. The same *Cross* or *Star*, being doubled or tripled, wonderfully encreaseth the aforelaid good fortune ; but cut or confused by other little lines, the said good is much diverted, and *Anxieties* and troubles threatned.

VIII. Good and equal lines in the *Mensa*, shew good fortune ; evil and distorted or crooked, the contrary.

IX. A *Cross* or *Star* in the *Mensa* over *Mons Luna*, shews fortunacy in travelling.

X. If there be no *mensa*, it shews a cloudy and obscure life and fortune.

CHAP. LXXXIII.

Of the Thumb and Fingers.

I. **A** Line surrounding the *Pollex* or Thumb in the *middle joint*, shews the person shall be hanged.

II. A line passing from the *upper joint* of the *Pollex* to the *Cardiaca*, shews a violent death, or danger by means of some married woman.

III. *Overthwart lines*, clear and long underneath the nail and joint of the Thumb, shew Riches and Honour.

IV. *Equal furrows* drawn under the lower joint thereof, shew Riches and Inheritances.

V. The *first and second joint* free from incisures, shew a slothful and idle person.

VI. *Overthwart lines* in the uppermost joint of the *Index*

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Index or fore-finger, shew inheritances; but such in the middle joint, shew a subtil person.

VII. *Right lines* running between those joints in the *Index*, shew (*in Women*) a plentiful issue; (*in Men*) a nimble tongue.

VIII. If they be in the *first joint* near *Mons Jovis*, they shew a pleasant and courteous disposition; and a man of a *generous soul*.

IX. But a Woman who hath a *Star* in the same place, is *lascivious and whorish*.

X. Little *gridirons* in the joints of the *Medius* or middle-finger, an unfortunate and melancholy person: but Equal and parallel lines shew fortune by dealing in Metals.

XI. A *Star* there, shews a violent death by drowning or Witchcraft, or the like.

XII. A *Gross line* rising from the *Mons Saturni*, through the whole finger to the end thereof, shews a meer fool or mad person.

XIII. In the *Annular* or Ring-finger, a line rising from the *Mons Solis*, straight through the joints thereof, shews honour and glory.

XIV. In the *first joint* of the *Annular*, equal lines shew treasure and honour: *overthwart* lines, the hatred of Kings and great men; but if intersected, their envy shall be abated.

XV. In the *Auricularis* or little-finger, a *Star* in its *first joint* near the mount thereof, shews one of ingenuity, and a good Orator.

XVI. *Evil Characters* and *obtuse Angles* the contrary: those unfortunate signs in the *first and second joints*, shew a thief: in the *last joint*, one perpetually inconstant.

XVII. Some Authors predict the *number of Wives or Husbands*, by the number of little lines in the out-
most

most part of the *Mons Mercurii*; but in my opinion those things ought rather to be sought out in the *Mount of Venus*.

XVIII. And as in the *Mounts* good or evil Characters, are *Omens* of good or evil fortunes; so also on the *fingers* they signify the same.

XXIX. The *first joint* near the mount shews the *first Age*: the *second joint*, *middle Age*: and the *last joint*, *old Age*: but it is *our opinion*, that the directions of the principal significators in every Geniture, more properly demonstrate the times in which the good or evil signified by those marks or lines, shall more certainly happen.

*A note concerning the Good and Evil Lines,
Marks or Characters.*

XX. The *good lines, marks or Characters* are parallels, as = or || double or treble, and the like, Crosses as + or x: double Crosses and the like: Stars as the Sextile Aspect * or the like: Ladders-steps and Quadrangles as □ or ▢: the trine aspect as Δ: Angles as the right or acute, or a multi-angle, &c. the Characters of *Jupiter* and *Venus*, as ♃ ♀, and other the like a kin to these.

XXI. The *Unfortunate and evil Characters* are deformed, irregular and uncouth figures, broken lines, crooked lines, gridirons, the Characters of ♄ *Saturn* and ♂ *Mars*: the opposition ♂: irregular Circles, obtuse angles and the like.

XXII. Lastly, as the *quantity of lines* considered in their length and depth; *their quality*, in their shape and complexion; *their Action*, in touching or cutting other lines; *their passion*, in being touched or cut of others; and *their place* in which they are posited or located;

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located, ought to be observed; so also their time of appearing or disappearing, ought to pass our cognizance.

For it is most certain, that some lines are prolonged to certain years of our Age, other some shortned; sometimes they wax pale, sometimes grow red; some of one shape quite vanish, while others of another shape rise: Now the cause without doubt is the various progressions of the Aphetical places in the geniture, to their various and contingent promissors, to the influence of which, the whole man it self is subjugated; and therefore it behoves the industrious and studious Artist, not to determine all things at first sight, for no man can attain the knowledge of all particulars at one inspection; But yearly to make new observations, as the person encreases in Age.

Experience framed Art by various use,
Example guiding where it was abstruse.

Qui in manu omnium hominum signa posuit, ut cognoscerent opera ejus singuli. Job 37. 7.

Moreover it is to be observed, that these judgements be not delivered simply alone, but by being compared with the rules delivered in Chap. 25. Lib. 1. from whence many other Prognosticks more than what we have here mentioned will arise, to the infinite pleasure of the Artist, and satisfaction of the curious inquisitor.

FINIS.

Chap. 3. Of the History of the

The first part of this chapter is devoted to a description of the various kinds of animals which inhabit the earth. It begins with a general account of the different classes of animals, and then proceeds to a more particular description of each class. The second part of the chapter is devoted to a description of the various kinds of plants which grow upon the earth. It begins with a general account of the different classes of plants, and then proceeds to a more particular description of each class. The third part of the chapter is devoted to a description of the various kinds of minerals which are found in the earth. It begins with a general account of the different classes of minerals, and then proceeds to a more particular description of each class.

The fourth part of this chapter is devoted to a description of the various kinds of metals which are found in the earth. It begins with a general account of the different classes of metals, and then proceeds to a more particular description of each class. The fifth part of the chapter is devoted to a description of the various kinds of stones which are found in the earth. It begins with a general account of the different classes of stones, and then proceeds to a more particular description of each class.

The sixth part of this chapter is devoted to a description of the various kinds of fossils which are found in the earth. It begins with a general account of the different classes of fossils, and then proceeds to a more particular description of each class. The seventh part of the chapter is devoted to a description of the various kinds of minerals which are found in the earth. It begins with a general account of the different classes of minerals, and then proceeds to a more particular description of each class.

THE END OF THE FIRST VOLUME

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